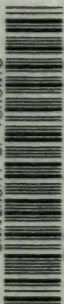
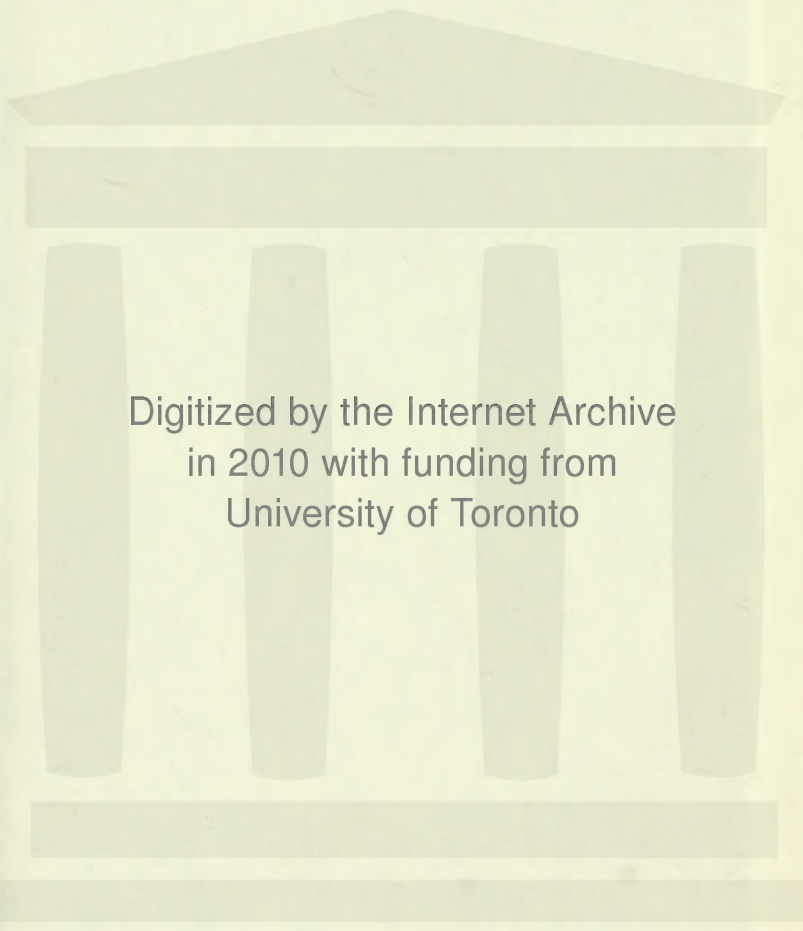


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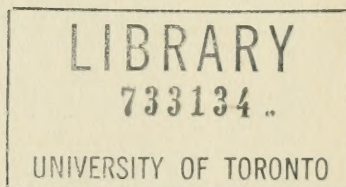


Report on a Survey

of the

TREASURY, ASSESSMENT, WORKS,
FIRE AND PROPERTY DEPARTMENTS

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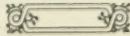
Prepared for the
CIVIC SURVEY COMMITTEE

by the
NEW YORK BUREAU OF MUNICIPAL RESEARCH
November-December, 1913

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LETTER OF TRANSMITTAL TO THE CITIZENS OF TORONTO
TO THE CITY GOVERNMENT AND THE HEADS OF
CIVIC DEPARTMENTS

The last twenty-five years has seen the beginning and rapid progress of the scientific management movement, not only in the United States and Canada, but throughout the civilized world. Private business has spent millions of dollars in working out the most efficient methods of office, selling, and manufacturing practice, in order that many more millions might be saved. Efficiency engineering and scientific management firms have sprung up all over the continent, and thousands of organizations, as a matter of settled policy, call in the efficiency expert to value their present methods and to suggest improvements. In fact, no large business can exist under present conditions of competition without the closest attention to all details of efficient methods in producing, selling, recording and accounting. Public business has lagged behind private business in the development of efficient methods, and only a handful of cities on the continent have made notable advances in scientific management. This has been due largely to four causes:

- 1—The failure of the citizens to recognize their vital personal interest in the conduct of civic affairs;
- 2—The absence of the factor of competition so prominent in private business;
- 3—The fallacious belief that public business differs essentially from private business; and
- 4—The failure to see that the rivalry between cities for desirable industries and fine types of new citizens can only be determined in favor of any city by the very closest scrutiny on the part of the citizens and the city government of the city's program and expenditures.

The Survey, of which the following pages contain the report, grew out of these considerations. The promoters of the Survey knew that private concerns, by the adoption of the principles of scientific management, had decreased the cost of their product by

10 per cent. or over, and they believe that a similar application of the same principles to the city government would effect an equal saving.

A saving of 5 per cent. only on the annual expenditure of Toronto would mean practically three-quarters of a million dollars. What the annual saving of such a sum in the cost of existing services would mean for the enlarged social program which the age demands can only be guessed.

The Committee believes that the adoption of the recommendations contained in this report will contribute toward obtaining the following results:

- 1—Decreased expenditure in some departments;
- 2—Increased productive expenditure in departments where such increase is shown to be good business;
- 3—Decrease in the tax rate, or at least that part of the tax rate which goes to the up-keep of existing services;
- 4—Increased efficiency in the service rendered by various city departments;
- 5—Increased citizen interest in the citizens' business;
- 6—The encouragement of faithful Controllers, Councillors and Mayors to continue in the service of the city through the substitution of facts for personalities in campaigns.

The Civic Survey Committee therefore submits to the citizens of Toronto, to the City Government, and to the Heads of Civic Departments this report of the experts of the New York Bureau of Municipal Research.

All statements in this report are as of November-December, 1913. On account of lack of complete information no attempt has been made to indicate in foot-notes subsequent changes in procedure.

Respectfully,

JOHN MACDONALD,
Honorary Chairman.

JOHN I. SUTCLIFFE,
Honorary Secretary.

For the Civic Survey Committee.

LETTER OF TRANSMITTAL FROM

Bureau of Municipal Research

261 Broadway, New York,
February 21, 1914.

Mr. John Macdonald, Chairman,
Civic Survey Committee,
608 Lumsden Building,
Toronto, Canada.

Dear Sir:

As requested by your committee, we are transmitting herewith our final report on a survey of the treasury, assessment, works, fire and property departments of the city of Toronto. Although this report has been made for a non-official agency, the statements of fact, the critical suggestions and the constructive recommendations were all taken up and discussed in detail with officers before this final draft was prepared.

In bringing to your attention and to the attention of officers certain conditions which it is thought should receive attention, we do not wish to be understood as criticizing any person connected with the government, but rather to impress the view that certain conditions pointed out operate as a handicap to officers, and that citizens as well as officers should assume responsibility for their continuance. Administrative defects are primarily those of methods and not of men. In every instance we have met with a spirit of frankness and of wholesome regard for community welfare on the part of those in the public service.

I am taking this occasion to express to you and the other members of the committee our appreciation of the opportunity to co-operate in a study which has brought us in touch with so many persons, both in public and private life, who are interested in making their governmental agency a more effective instrument for common good.

Very sincerely yours,

(Signed) F. A. CLEVELAND,

Director.

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GENERAL STATEMENT

The principal work of Toronto's treasury department consists in :

- 1—Administering the city's finances.
- 2—Keeping accounts and rendering reports by means of which administrative officers, members of council and citizens may at all times have available information about the city's financial conditions and the results of financial transactions.

Administration of the City's Finances.

The scope of this survey does not include an audit of the city's accounts and financial statements; that is, it does not include inquiry into the city's financial condition. The balance sheets and other statements which are attached to this report are, therefore, to be considered as pro forma—presenting an analysis of balances and totals found on the books as of December 31, 1912. They are not offered as statements reflecting financial conditions. They are to be considered only as a basis for the discussion of accounting and reporting practices. Without a complete audit of the accounts and a careful determination, not only of the meaning of accounting balances and totals, but also as to whether all of the assets and liabilities are correctly represented on the books, it would be unwise to hazard an opinion with respect to conditions resulting from the administration of the city's financial affairs. This statement is made lest the data submitted might be used in a manner to affect the credit and borrowing reputation of the corporation. The critical comment and constructive recommendations contained in the report relate primarily to the methods of meeting the city's financial needs and to the practices pertaining to keeping accounts and rendering reports.

Fundamental Recommendations Pertaining to Methods of Financing.

With a view to laying a foundation for comment and constructive suggestion, methods of financing and of exerting control over the finances were gone into not only with executive and administrative officers but also with members of council. In view of the present situation it is recommended :

- 1—That steps be taken to establish responsible leadership for financial proposals.
- 2—That present practices be modified so as to provide for the submission of:
 - a—Forms of annual estimates that will carry comparative expenditure data and estimates—these to show **actual** as well as **estimated** expenses and capital outlay for each function or activity performed by each department or other organization unit, as well as over-head cost, including fixed charges, and that these be carried in such further analysis as will show the cost or estimated cost in terms of salaries and wages, services other than personal (such as telephone, telegraph, transportation, repairs by contract, etc.), materials, supplies and equipment;
 - b—A budget which will consist of:
 - (1) **A comparative balance sheet** — or statement of current assets and liabilities which will also show the current surplus or deficit, supported by schedules of details including a statement of cash receipts and disbursements and a debt statement;
 - (2) **A comparative operation account**—or form of a comparative statement of revenues and expenses for a period of five years;
 - (3) **A comparative capital account**—which will show on the one side cost of properties, less depreciation, and on the other outstanding debt, less sinking funds held in reserve for debt retirement;
 - (4) **A fund statement**—which will show comparatively the condition of the general fund, debenture funds, special and trust funds and sinking funds;
 - (5) **A request for appropriations**—in form a list of proposed items for appropriation so set up as to show the appropriations of the current year and actual expenditures against authorization of each of three prior years;
 - (6) **Detailed departmental estimates**—and comparative data of expenditure in unit costs supporting requests for appropriation.

The Keeping of Accounts and the Rendering of Reports.

While the main purpose of the part of the report dealing with the city's accounts is to lay before officers and the survey committee what is thought to be wrong, together with constructive recommendations looking toward the curing of defects in methods employed in the city treasury department, it is only fair to say that there is much in the office to commend it, and that the attitude of the officials was most cordial—a spirit of frankness and co-operation being found throughout. The accounting work in the treasury department appears to be well done. In contrast to many American cities, the books of the treasury department were found to be neatly and cleanly kept and balanced with periodical regularity. The survey has, however, clearly shown the need for a revision of the present accounting procedure.

The kind of information needed for clear thinking about the financial affairs of the city cannot be produced by the present system.

Fundamental Recommendations Pertaining to Accounting and Reporting.

The methods of keeping and rendering accounts have been carefully gone into. Every detail of office practice in the department has been followed and discussed with officers in charge. While in the main the accounting technique employed in the treasurer's office is superior to that found in most cities where surveys have been made, yet the fact-producing plant in many particulars is not adapted to the city's needs. These particulars are pointed out in details in the report. A summary of recommendations follows, viz.:

- 1—That a new form of annual report be adopted which will more clearly set forth financial conditions and results.
- 2—That a new general ledger be installed which will contain such accounts and only such as are needed in the preparation of summary statements showing assets and liabilities, revenues and expenditures, surplus and deficit and the condition of the city's funds.
- 3—That all supporting details of information, which are needed for purposes of administration and for furnishing such analysis of summary accounts kept on the general ledger, be carried in detailed records.
- 4—That the supporting and detailed accounts be so classified that information in any detail or summary desired may be drawn off without re-analysis or duplication of work.

- 5—That the accounts of the general ledger and the detailed ledgers be independently posted so that the accuracy of statements when taken off the detailed records may be proved by being checked by totals to the general ledger control accounts.
- 6—That a summary statement of assets and liabilities in balance sheet form, revenue and expense account and statement of the condition of the city's funds be drawn off of the general ledger and published monthly; and that quarterly a detailed comparative statement of departmental expenditures be made available to the mayor, council and public press.
- 7—That the quarterly statements of expenditure be accompanied by comparative operation statistics furnished by departments in such form that units of cost may be shown whenever practicable.
- 8—That the statistics of expenditures be kept in such analysis as may be needed in the preparation of the annual estimates.

In case these constructive recommendations are carried out, Toronto will have a means whereby responsible leadership can be established and this leadership may be made effective through a well-equipped plant for keeping its officers and citizens currently informed about the public business. Without the facilities for supplying this information those in positions of responsibility for handling public service as well as the community to which it is rendered must labor under the serious handicap of being ignorant of the facts necessary to intelligent consideration of what is going on or what is proposed and the city must suffer from lack of definiteness of policy as well as lack of efficient administration. **The best and most capable men in office cannot render efficient service when provision is not made for intelligent planning and the intelligent execution of plans.**

ADMINISTRATION OF THE CITY'S FINANCES

While no audit has been made of the city's accounts and financial statements and no conclusions have been reached with respect to the city's present financial position, it does fall within the scope of the survey to call attention to certain practices relating to administration. These will be discussed under the following heads:

- 1—Legal obstructions to good administration.
- 2—Lack of effective control over the city's finances.
- 3—Methods at present employed in financing.

- 4—Lack of adequate supervision over the administration of finances.
- 5—Administrative questions relating to the debt limit.
- 6—Administration of special funds, trust funds and sinking funds.
- 7—Lack of adequate equipment.

Legal Obstructions to Good Administration

At the outset, before going into practices which may be corrected without change in statutes, attention is suggested to certain legal obstructions, the removal of which would contribute to better financial administration.

Revenue and Expenditure Years Do Not Correspond.

Among the legal obstructions to good administration of the city's finances may be mentioned the fact that the revenue fiscal year does not correspond with the expenditure fiscal year. Annual taxes in Toronto are payable in three instalments: the first in July, the second in September, and the third in November. The result of this practice is that the city is amply provided with funds during the latter part of the year with which to meet current expenses, but is not provided with funds during the first six months or the elapsed period between the time the appropriations become expendable and the first instalment of taxes falls due. The city is, therefore, compelled to borrow funds needed in so far as these are not provided through the collection of miscellaneous revenue. If the city is to have three tax paying periods, there would seem to be no reason why these might not be more evenly distributed over the year, nor would there seem to be any reason why accruals of taxes should not cover the same period as accruals of expenditures.

Ill Adapted Penalty for Delay in Paying.

Another legal condition which stands in the way of getting results is the flat penalty of five per cent. imposed on all taxes remaining unpaid at the time the tax roll is closed. Frequently three and four years elapse before tax rolls are turned in and closed by the collectors. This means that all unpaid taxes at the time of closing have been outstanding for three or four years, the only penalty for which is a flat rate of 5 per cent. Therefore, taxpayers who refrain from paying taxes for three or four years after they become due may use their money at a rate of less than 2 per cent. per annum. This operates both to make collection uncertain and to force the city to borrow

more than would be necessary if the inducement were not present for the taxpayer to withhold payment. After the tax roll is closed five per cent. interest, compounded annually, is charged. It is suggested that all tax rolls be automatically and legally closed not later than the end of the year succeeding the year in which the items become due and that the open items at that time shall be considered in arrears, and should be subject to a 5 per cent. annual charge as a penalty for non-payment.

Tax Sales Delayed.

The records and accounts maintained in the arrears of taxes division are exceedingly well kept. They are balanced and proven periodically with the general ledger and it is possible at all times to ascertain the status of each particular item.

Owing to the fact, however, that taxes are not deemed to be in arrears until the tax rolls have been closed, which, as has been said, is actually three or four years after the taxes become due, there is an undue delay in the enforcement of collection by means of tax sales.

The assessment act provides that property cannot be sold for arrears of taxes until they have been in arrears for a period of three years. This means that in many cases taxes are outstanding for a period of six or seven years before tax lien lists are prepared as a basis upon which tax sales are held.

By closing the tax rolls at the end of the year succeeding the year in which they become due, not only will larger revenue for the city be produced by reason of the application of a 5 per cent. interest penalty compounded annually, but the preparation of tax lien lists two years in advance of the present practice will be made possible.

Water Revenue Collection Period Does Not Correspond with Fiscal Year.

The tariff rates for water service are payable in advance semi-annually, on April 1st and October 1st. The bills are rendered in March and September and if paid before April 1st and October 1st, a ten per cent. discount is allowed. No penalty is added to water rates if payment is not made on or before the date specified, but the water is turned off from the premises after the bills have become four months overdue. Bills for water furnished on a metered basis are rendered quarterly, a period of two months being permitted to elapse before the water is turned off for failure to pay within the

time specified. The fiscal year ends December 31st. The current expenses for operation and maintenance are made for the fiscal expenditure year.

In order that a clear understanding may be had of the cost of the operation and maintenance of the waterworks department and the revenue derived therefrom, it is essential that the revenue period correspond with the fiscal period. It is recommended that bills for water service on a tariff basis be made to fall due on January 1st and July 1st. The same recommendation also applies to metered services.

Lack of Effective Control Over the City's Finances

Control over the city's finances is provided for through the treasury board, the board of control, the council as the appropriating power, and the administrative officers who are charged with responsibility for executing authorities to spend and for protecting the city's funds. None of these agencies have been utilized to the full extent of their legal possibilities. This is partly due to lack of information and partly due to failure to use the instruments in their hands. The primary instruments of control are the departmental estimates, money bills, and allotments of appropriations. The fundamental weakness of the financial system is to be found in a procedure which leaves the city without a responsible head—without leadership which undertakes to define issues and get before boards of control, the council and the electorate measures on which opinions can be expressed.

Practices Which Are Opposed to Efficient Administration.

The head of the administration is the board of control. This is elected annually. The fiscal year is the calendar year. The present practice is to leave the formulation of a financial program until after the election—until after the new board of control has been installed. The result is that appropriations are not passed until the fiscal year is well advanced. Usually it is April or May before the new administration knows how much it is authorized to spend. Until the appropriations have been passed the tax rate cannot be fixed. About six months elapse before the first collections of taxes can be made. The present practice not only operates as a handicap to efficient administration, but it also handicaps the electorate since its action must relate to the past rather than to the future.

Proposals Which Look Toward Responsible Leadership.

The proposals which look toward responsible leadership are:

- 1—To have departmental estimates submitted in October.
- 2—To have the mayor, as the head of the board of control, prepare and submit to council a budget, the first week in December.
- 3—To require that the members of the board of control shall either concur in the mayor's budget or state wherein they are opposed and the reasons for their opposition.
- 4—To give opportunity for the aldermanic council to pass a budget before January 1st.
- 5—To get before the electorate well defined issues with statements of fact about what the administration has done and what it proposes to do before the annual election.
- 6—To enable the new administration to pass or modify the budget which has been made a principal issue in the campaign early in the fiscal year.
- 7—To make the mayor an effective prime minister by electing co-members of the board of control that are in agreement with his policies.

Departmental Estimates Inadequate.

For purposes of control the present forms of departmental estimates are inadequate; they do not provide the information needed as a basis for executive judgment as to what amounts should be appropriated. Standard forms for the preparation of departmental estimates are not now in use. Departments should be required to furnish on forms designed for such purpose information with respect to cost for each kind of **work done** by each **organization unit** or subdivision of department, sub-analyzed to show **current expenses** as distinguished from capital outlays and in such details as will show separately the cost of **things bought**, such as salaries and wages, services other than personal, materials, supplies, equipment and other specified objects of expenditure. Within each of these standard classes or groups of expenditures should also be established a uniform outline for the analysis of costs, so that both the executive and members of council can determine the economy with which purchases are made and the efficiency with which public business is adminis-

tered. As a standard outline for analysis to show cost of things purchased the following is suggested:

Personal service:

- Salaries, regular employees.
- Salaries, temporary employees.
- Wages, regular employees.
- Wages, temporary employees.

Supplies:

- Food supplies.
- Forage and veterinary supplies.
- Fuel supplies.
- Office supplies.
- Medical and surgical supplies.
- Laundry, cleaning and disinfecting supplies.
- Refrigerating supplies.
- Educational and recreational supplies.
- Botanical and agricultural supplies.
- Motor vehicle supplies.
- General plant supplies.

Materials.

Equipment.

Services purchased by contract or open market order:

- General repairs.
- Light, heat and power.
- Transportation.
- Communication.
- General plant service.
- Motor vehicle repairs.

Contingencies.

Fixed charges and contributions.

Capital outlays.

The forms for estimates should provide for recapitulation and show comparatively:

- 1—Actual costs, appropriations and estimates for each organization unit or subdivision of government for which separate estimates are submitted.
- 2—Actual costs, appropriations and estimates for each class of service or activity performed.

- 3—Actual costs, appropriations and estimates for each class and kind of thing purchased.
- 4—Actual expenditures, appropriations and estimates for expenses, capital outlays and fixed charges.

In making these summaries, the expenditures should not only be shown in total for the period but also so far as practical on a unit cost basis. In other words, in representing actual expenditures in support of requests for further appropriations, all of the information developed in the accounting that may be of use in determining what amount shall be requested or in deciding what appropriation shall be granted, should be included and the form in which the estimates are submitted should provide for supplying such information.

Publicity to be Given to Estimates Submitted.

An essential to the effective exercise of control of finances is to be found in the steps taken to gain publicity for estimates, expenditures and appropriations. This publicity should begin with the departmental estimates themselves. This information should be made available to all the agencies which affect public opinion, such as citizen associations interested in the affairs of government, and private citizens. Summaries should also be printed in prospective and published so that citizens, as well as officers, might have before them what is proposed as well as what has been done. In printing copies for officers, a specified number of additional copies should be prepared for circulation or use in the several ways indicated.

Submission of a Budget by the Board of Control.

One of the primary factors of both executive and administrative control is a requirement that the mayor as the head of the board of control shall submit a budget. This is an effective means for locating responsibility for official acts. As related to a scheme of financing there is no better method known than to require the executive head of the government to assume responsibility for formulating and laying before the legislative and appropriating body a definite request based on the estimates which are prepared by his subordinates. The assumption should be that those who are in continual contact with the community, those who have administrative charge of the various services to be rendered to citizens, will understand the service needs and the financial requirements better than any one else in the government. Furthermore, it is to these different branches of the services that specialized experts are provided. It must be admitted, there-

fore, that those who have a specialized interest in rendering a certain class of service to the community will be most keenly alive to the opportunities as well as the needs for its development.

Legislative Responsibility for Control.

On the other hand, the board of control which has before it all of the requests made by department specialists and citizens interested in developing the public service should be called upon to assume definite responsibility for judgment with respect to the plan or program submitted. It should be the judge of what in its opinion the community is able to finance. The board of control should give to council and to the community the benefit of its views also with respect to the method of raising revenue or borrowing. This function can be most effectively exercised when it has before it in the form of a definite plan or program, the views of the chief executive. It is only through the submission of a budget, as a definite plan or program, that executive leadership can be developed and definite expression can be gained from the electorate either for or against the administration. Unless the mayor does take a definite stand before the community there is no way for locating responsibility for what is done in council when appropriations are made, as in this body the result must be one of compromise established on the principle of give and take.

There is another very distinct advantage to be gained from requiring that a definite proposal or request for appropriation be submitted by the mayor, namely, that when responsibility is placed upon the chief executive for making such a submission, a very great deal of joint consideration must be given to the proposal by heads of departments who are clamoring for increases largely in excess of what the community can afford to finance. The board of control will, therefore, focus all of the expert opinion in the administration as well as such expert opinion of citizens as can be brought to bear from the outside, before making their submission. The budget when it reaches the council will have given to it a much more serious consideration than is usually given to it at the present time after it reaches council.

The Action of Council on Budget.

When a financial measure in the form of an executive budget reaches council, the legislative body will then have before it all of the information which was available to the board of control and

besides it may benefit by the expert consideration which has been given to the financial plan before it was submitted—information which would not be developed and which would not be obtainable in as effective a manner as if the departmental estimates were submitted otherwise. With such a budget submitted as a financial administrative program the city would have the benefit of a well-organized pro-administration and anti-administration consideration. In other words, council would take sides on the proposition submitted by the board of control and the town would necessarily take sides with respect to both the action of that board and the action of council. Both the board of control and council would thus be made responsible before the town for whatever action was taken and the individual members of council would have to stand or fall before their constituency as they stood for or against measures which had been proposed.

At the present time there is much delay in getting the acts of appropriation through council. Notwithstanding the fact that the acts of appropriation become effective on January 1st of each year, they are rarely made effective until several months of the appropriation year have passed. In other words, the city is required to operate its business in the face of an uncertainty until the acts authorizing expenditures for the fiscal year have passed the legislative branch. This means that the city, during such time, must be without a working plan or program and the administrative officers are unable to make their decisions as to what should be undertaken until many thousands of dollars have been expended.

In 1913, for example, the budget was not passed until May, or until expenditures for nearly five months of the year had been made. This certainly is not a method of control which should be commended nor one through which the city or its managers can obtain the best results. The budget might be formulated and submitted to council on or before December 1st, and with it all of the information which had been developed in the course of its preparation, including:

- 1—A comparative balance sheet.
- 2—An operation account.
- 3—A comparative fund statement.
- 4—A detail statement of present conditions of appropriations, including an appropriation statement which would show the unexpended balance, the encumbrances, the unencumbered balance and the reserves for contracts and open market orders.

- 5—A detailed statement of revenue.
- 6—A comparative detailed statement of expenditures, appropriations and estimates.
- 7—A list of appropriations requested and a definite statement by the executive in the form of a message which would call attention to the important changes to be made and to the reasons for making increases and decreases in items of appropriation.

If this were done there would seem to be little reason why the council by January 1st should not have arrived at a conclusion which would enable it to enact an appropriation measure and at the same time decide on what revenues and borrowings should be authorized to finance the ensuing year's current needs. Should it happen for any reason that a decision could not be reached, some provision could be made for current finances until the money bills had been passed.

Additional Control Through Allotments of Appropriations.

Lump fund appropriations oftentimes prove objectionable unless some means may be provided whereby the executive is required to assume responsibility for definite allotment and in such detail as would be required for the submission of estimates, after the appropriation has been made—the lump fund appropriations to carry with them the condition that no money shall be spent or appropriations encumbered until allotments have been made by the executive.

Such an arrangement has an advantage over detail appropriations or what is sometimes called a highly segregated budget, in that it gives to administrative heads an opportunity to exercise discretion with respect to how funds shall be spent, after the amounts have been fixed by the legislative body. It gives to the city protection against the improper exercise of such discretion, however, by requiring a definite allotment which must be approved either by the executive or by a board of control or some other central authority before expenditures can be made. Such a plan has the added advantage of bringing to the problem of the administration the benefit of expert opinion with respect to the best utilization of the funds after the total amount of expenditure has been fixed and at the same time lays a definite foundation for executive control over the several departments, both before and after expenditure, the control before expenditure to be exercised in approval of the estimates for allotments and the control after expenditure to be exercised through the reports of expenditure and audit. The element of control may be still further

extended by requiring that allotments when made by the executive on the estimates submitted by heads of departments shall be approved by the board of control or by the council itself.

Need for Establishing a Civil List.

Control over lump fund appropriations for salaries and wages should still further be exercised through establishing a civil list by central authority. This should be prepared by the board of control, arranged by classes and grades of service, as well as by departments, and submitted to the council for approval. A recapitulation and summary should accompany the civil list showing the totals for each class, grade and rate of pay for the entire city. In approving such a list the condition should be attached that the board of control would have power to shift from one department to another any person within the list, so that his services might be used to the best advantage by the city, being limited only by the amount of salaries and wages which could be paid.

By placing on the list a definite number of persons who may be employed within each class, grade and rate of pay, the city would be protected against the depletion of the service of expert and highly paid officers and employees and the placing on the roll of relatively low paid and inexperienced employees for partisan or other purposes. Other regulations, general in character, affecting the service would also be made to apply, such as qualifications for appointment, conditions affecting promotion, demotion, retirement, reinstatement, etc. These prescriptions, as well as the civil list itself, however, should be general in character and should not be permitted to interfere with the transfer or use of men in the service of the municipality to other places where their services might be used to the highest advantage, subject only to the financial limitations imposed through appropriations and allotments.

Control of Appropriations by Council Through Passing of Vouchers.

At the present time control over expenditures by council after appropriation is attempted by the approval of vouchers. In another section of this report it is pointed out that this is a function which should not be exercised either by a committee of council or through the board of control or by council as a whole. There is every reason why the legislative body should review the actions of an administration and have all the facilities for doing so, but there is no reason why the current business and the bills before payment should be

required to pass before council or before a committee of council. It cannot do more than force the council to act in a perfunctory manner and at the same time it necessarily operates to act as an impediment to public business.

Methods at Present Employed in Financing

Tax Rates Should Not Interfere with Adequate Appropriations for Operation and Maintenance.

There appears to be a tendency on the part of the council in its consideration of the annual estimates not to include items which more properly should be considered as current expenses, the reason therefor apparently being due to the desire not to increase the tax rate and to impose upon some future council the responsibility for that necessary act. Items thus left out of the annual budget are often funded through subsequent debenture issues which naturally impose upon the city an additional interest burden and which of necessity must be included in the budget. To that extent the funds which otherwise would be available for necessary operating and maintenance expenses must be diverted.

The soundest policy of financing current expenses of a city demands, as a prerequisite, the ascertaining of how much is absolutely necessary to be expended, to carry on properly the necessary functions and activities of the city government. Once this is determined, through careful and conscientious application to a study of the city's needs, the total sum arrived at less revenues other than current taxes, should be divided into the assessed valuation of rateable property, including business and income assessment, to determine the tax rate—special tax levies being considered separately.

An attempt, first to determine upon a tax rate, and then to endeavor to fit current operating and maintenance expense requirements according to such rate, will eventually produce a situation which will be very difficult to overcome. Economy should be exercised wherever it is possible, but it is false economy to permit any important part of the city's work to be neglected simply because it is not expedient to face a situation which would require considerable outlay to correct, but which if rightly financed should be met through current taxes.

Pavements Wrongfully Maintained by Debenture Funds.

An illustration of such unsound financial methods is the practice

now followed in Toronto of repairing the track allowance area of the Toronto street railway by debenture issues, rather than to provide the necessary funds through current taxation.

In the preparation of the annual budget for 1913, it was estimated that \$1,075,000 would be paid into the city treasury by the Toronto street railway company as the city's percentage of the gross earnings of the railway and the mileage rental. This entire sum, less a total of \$230,155 for sinking fund and interest charges on street railway pavement debentures previously issued, was included in the total revenues applicable to the reduction of taxation. This was done in face of the fact that the general ledger of the city disclosed that for the years 1911 and 1912, \$826,223.92 had been expended for track allowance repairs, the funds for which had not been provided for as of December 31, 1912. The balance on the books represented actual disbursements for repairs, to fund which no provision was made by council until 1913, when debentures were authorized to be issued for this purpose.

Why the city should apply the total amount of revenues derived from the operation of the Toronto street railway to the reduction of taxation and make the necessary repairs to the railway track pavements through debenture issues is beyond conception. Such practice has the effect of the city issuing debenture bonds, the proceeds of which are applied to the reduction of taxation. It is a practice that should not be tolerated. All of the expense necessary properly to maintain the railway track allowance should be a first charge against the revenues received from the railway company. If track allowance repairs cost on the average of \$500,000 per annum, the present methods of financing such repairs impose an unjust interest burden amounting to approximately \$25,000 per year.

No Established Rule for the Application of Debenture Funds.

Debenture issues, primarily, are intended to be used for the acquisition of new public improvements and for the extension of existing ones. So far as could be determined, there are no exact definitions in the existing statutes prescribing definitely the uses to which debenture funds may be applied. The lack of such definition makes possible the authorization of debenture issues for purposes which more properly should be funded through current taxation.

It is very important that the appropriating body of any city should not be permitted to issue long term bonds for repairs and upkeep of

city property or for other current expenses. To avoid this situation, which now prevails in Toronto, it is essential that a definite rule be laid down prescribing in as exact terms as possible the purposes for which debentures may be authorized.

Term of Debentures Does Not Co-ordinate with Estimated Life of Improvements or Extensions Acquired.

An important feature in the adoption of such a rule would be the preparation of comprehensive schedules of the kinds of public improvements which properly may be funded through debenture issues.

The kinds of improvements or extensions should be grouped in classes according to their estimated life. A five year term should be the minimum, and five year intervals should separate the groupings until a maximum, say, of 40 years (which is the present limitation for debenture issues) is reached.

In the authorization of debenture issues thereafter this schedule should be strictly adhered to and the term of debenture bond made to co-ordinate therewith. This theory applies so long as it is deemed wise to pay for all new improvements and extensions through debenture issues and not through current appropriations.

In many respects debentures in serial form are preferable from the standpoint of the city to those running for a stated term. The adoption of the serial form would obviate the necessity for the creation of a sinking fund providing that the serial bond matures in equal annual instalments. It would also eventually reduce the amount necessary to be raised to provide for interest charges. The ultimate decision, however, with respect to the form of debentures should only be determined after a careful study has been made of the relative advantages and disadvantages of each form, due consideration being given to the marketability of each form.

Debentures Sold at a Discount.

In recent years all debenture issues in the city of Toronto have been disposed of at a discount, or in other words, at a price less than one hundred cents on the dollar. This has been due largely to the fact that it has been deemed wise by the fiscal officers of the city to maintain a relatively low interest rate on debenture issues, and to obtain as high a price as was possible according to market conditions at the time of sale.

In support of this policy, the argument has been advanced that

the city maintains a better credit standing if the interest rates on its bonds are maintained at a relatively low level, the original price at which the sales were made being soon forgotten. While this argument may have considerable merit, the practice itself has a very serious effect upon a definite financial program, because it is difficult to foresee several years in advance what the condition of the market may be, thus preventing the carrying out of a program requiring a definite expenditure of money. In other words, if debentures are to be sold at a discount, and the interest rate thereon is to be maintained on a relatively low level, depending on money market conditions, it is impossible for the appropriating body to determine, with any precision, the amount of debentures necessary to be authorized in order to finance an approved program. This is particularly true in view of the statutory requirement limiting the borrowing powers of the city, and more particularly in the event of the city having reached, or nearly reached, the statutory limitation. For example, if the remaining borrowing power of the city at a given date was \$5,000,000 and the appropriating body was desirous of preparing a financial program within that available amount, it could not do so because of the uncertainty as to future money market conditions, and the practical certainty of having to dispose of the debenture issues at less than par.

This situation, of course, would be avoided and the appropriating body would be assured of the ultimate consummation of their program, if, when actual sales of debentures are made, the interest rate thereof were adjusted to a point where the city would be assured of receiving a price of not less than par.

Effect of Selling Debentures at a Discount.

As a result of the present practice, it is necessary in order, for example, to provide \$1,000,000 to finance a given improvement to authorize a considerably larger sum than that amount to insure obtaining \$1,000,000 net, or, in other words, if it was thought that $4\frac{1}{2}$ per cent. bonds could be sold at 95, and $4\frac{1}{2}$ was the fixed interest rate, the appropriating body would of necessity be compelled to authorize approximately \$1,050,000 in order to obtain \$1,000,000 in cash. The additional \$50,000 would naturally, and to that extent, reduce the available borrowing margin and necessitate the appropriation of the necessary sinking fund and interest charges.

Another and more serious effect of this practice is to increase the book cost of public improvements by the amount of such discounts,

which would not be the case had the debentures been sold for par or more. The entire cost to the city represented by debenture discounts is treated on the books of the treasury department as capital expenditure, being charged as part of the actual cost of acquiring public improvements.

Local Improvement Financing Costly.

Because of the present practice of having to wait until the entire cost of local improvement work is ascertained and all disputes are settled, and because the city must borrow the necessary funds to carry on the work, heavy interest charges for bank loans are incurred. Considerable delay in determining final costs is made necessary by expropriating more property than is ultimately found necessary in street widening operations. For that reason the city must wait until the surplus property is sold before actual costs are obtainable. Debentures cannot be issued until such costs are determined and the collection of assessments made against the property benefited is necessarily deferred.

This situation should be given immediate and close attention by the city officials and a plan worked out to correct such unsound methods.

Lack of Adequate Supervision Over the Administration of Finances

Debenture and Bank Loan Discount Not Included in Annual Estimates.

Because of the practice periodically to apportion all of the debenture discount cost over various capital expenditure accounts, the attention of the board of control and council could not be centered on this most important subject. There is no reason why such an important item amounting to hundreds of thousands of dollars annually should not be included in the annual estimates and placed before the board of control and council as a necessary expense to be provided for, and thus place upon them the just responsibility for determining a more businesslike policy of city financing.

In considering a financial program, every known revenue of the city, actual and estimated, and every known expense, actual and estimated, as well as the cost for projected public improvements, should be definitely set forth in financial reports.

Nothing on the books of the treasury department affecting such a financial program should be omitted in the preparation of the annual estimates, as is the present practice, in the failure, for example, to include debenture loan discount, bank loan discount, etc., etc.

Interest on Bank Deposits.

Interest on deposits is allowed by various banks at the rate of 3 per cent. It is a very rare occurrence for the city to have on deposit in its various depositories sufficient funds to meet its current needs. This situation is due to the fact that arrangements have been made with the said depositories to permit overdrafts within certain limits.

While these arrangements have several admirable features, one of which enables the city to curtail its loans and thus prevent unnecessary interest charges by virtue of loans, it is questionable whether or not the net cost to the city is any less. Three per cent. is allowed by the banks on existing balances, while $4\frac{1}{2}$ per cent. is charged by the banks on all overdrafts made by the city up to the amount of the cash deposits to the credit of the city sinking funds; **which means that the city is paying $1\frac{1}{2}$ per cent. interest for the use of its own money represented by cash in the sinking funds.** Interest on all overdrafts in excess of sinking fund cash is charged by the banks at current market rates, the minimum of which heretofore has been $4\frac{1}{2}$ per cent., and recently was as high as 6 per cent.

It is suggested that a careful study be made to determine the cost to the city of bank loan discounts and overdrafts, with a view to establishing once for all the least costly method of providing cash to meet current demands therefor. In connection with such a study the question of the desirability of advancing the dates for the collection of taxes should be considered.

Appropriations and Authorizations Permitted to be Overdrawn.

It appears to be a recognized practice in Toronto to make disbursements from both current appropriation and debenture accounts in excess of the amounts authorized by money by-laws. An analysis of the general ledger accounts for the year 1912 disclosed expenditures in excess of current appropriations included in the annual estimates to the amount of \$418,926.08 and \$519,644.13 not authorized in annual estimates. In addition to this there were expenditures from debenture funds in excess of original authorizations to the extent of \$2,245,592.82. Details of these amounts are shown on Schedules 11 and 12, attached to this report.

In the 1913 annual estimates there were included appropriations sufficient to meet the unauthorized expenditures of the previous year. So far as the unauthorized capital expenditures are concerned, the customary practice to provide funds to meet them is for council, some time subsequent to the actual disbursement, to pass money by-laws authorizing additional debenture issues sufficient to meet the overpayments. **This practice is exceedingly dangerous and should not be tolerated.** Expenditures should not be made until council has specifically authorized funds to meet such payment, and has designated from what source the funds are to be procured.

If council only is legally empowered to specify the amount of money to be spent for a given improvement, after having so specified through authorizing a stated amount for a given improvement, the auditor should not be permitted to certify to a claim in excess of the stated amount. Neither should the treasurer be permitted to pay a claim in excess of the stated amount until council has first taken formal action and has authorized additional debentures for any excess cost, if, in their opinion, such action is deemed wise. In such cases, where vouchers have been examined by representative committees of council, and have been passed upon for payment by council, and which are in excess of existing authorizations, such vouchers should not be paid until council first has formally authorized the necessary funds and designated the source thereof.

Arbitrary Charges for Services Not Specified in Water Works By-Laws.

Charges for water services not specifically defined in the by-laws above referred to are determined by the examiner in charge of the water revenue division. The use of hydraulic appliances of all kinds requires the consumption of large quantities of water. Where such appliances are known to be used in unmetered premises, the examiner in charge determines the rate to be paid. In a number of cities it has been found that hydraulic vacuum cleaners were used extensively, especially where the water is paid for on a frontage or other fixed basis.

It is recommended that a study be made to determine as accurately as possible to what extent hydraulic vacuum cleaners and other appliances requiring large quantities of water to operate, are being used on premises that are not now metered.

Meter Readers Should Be Shifted Periodically.

It is the present practice for a given territory to be covered year

in and year out by the same meter reader. More effective results are obtainable by adopting the practice of changing the allotment of territory among the meter readers at periodical intervals. The reason for this is obvious. It has been found in many cities that after adopting the policy of changing the territory from time to time, more accurate reports were obtained.

In Toronto, meter readers not only retain the same territory indefinitely, but invariably have with them on their tours the particulars of previous meter readings. This practice is also undesirable.

It is recommended that in addition to the shifting of meter readers from time to time, a form of meter reading report be adopted which will not contain information respecting the previous reading. This can be accomplished without any serious loss of time or effort on the part of the accounting staff.

Controlling Miscellaneous Revenues.

The sources of miscellaneous revenues in most cities are very seldom considered of sufficient importance to warrant much care being exercised over their collection and control. Toronto is not exceptional in this respect. No attempt is made to establish currently the amount of miscellaneous revenue actually earned and due to the city for licenses, permits and other privileges, the only basis for accounting therefor being the actual cash receipts. Whether all revenues that should have been received were so received, and if not how much still remains unpaid, is not ascertainable from the books of the treasury department. Consequently, the treasurer has no means for exercising supervisory control, so necessary if effective results are to be obtained.

It is recommended that a careful study be made of all the present sources of city revenue with a view to determining whether or not the city is obtaining just returns therefrom, and whether or not it is desirable to increase or diminish the present rates; also whether equitable sources of city revenue are available which have heretofore been overlooked.

Means of Controlling Collections.

Forms of receipts for money collected on account of miscellaneous revenues are now issued on stationery which is not properly controlled. It is very desirable that no matter what department or office of the city government is responsible for the granting of privileges, permits,

etc., from which revenue is derived, such office or department should be required to issue documents, as evidence of privileges or permits, on forms provided and controlled by the city treasurer, and each and every form so provided should be accounted for to the city treasurer, either as issued or spoiled. Controlled forms of this character should be serially numbered and charged to the respective departments as issued by the treasurer. The forms should be printed on safety paper and should bear a graduated stub so arranged as to make possible, by carbon process, the preparation of a duplicate for transmission to the treasurer as evidence of the amount collected, and used by him as a basis for audit. A more specific description of the kind of forms to be used in this connection is set forth in the Accounting, Reporting and Business Procedure section of the report on the Department of Works.

Lack of Investigation of Requests for Appropriations or Authorizations.

In connection with the investigation of annual departmental estimates and other requests during each year for funds, whether for current expenses or capital outlays, there should be provided an independent staff so organized as to be able to investigate all financial requests, independent of departments, and provide council, the board of control and the treasury board with reports upon which they should base their action.

There is now no means of obtaining the kind of information so necessary for judging the desirability of granting or refusing requests for funds. The various committees of council and the board of control hold hearings and frequently, it is stated, make personal investigations of matters coming before them. They have no regular channel, however, for obtaining the kind of information or the necessary details properly to enable them to think understandingly.

It is recommended that a small investigating staff be organized as a separate board or bureau of council, whose functions would be to investigate and to report upon all matters requiring financial consideration. The functions of such a bureau or board would include, among other things, and in addition to those enumerated above, the following:

- 1—A study of existing salaries and grades within the civil service with a view to adopting standard classification titles and rates of compensation and thus provide for like salaries being paid for like work.

- 2—The establishment of standard forms of contracts and contract specifications.
- 3—The establishment of standards for the various kinds of supplies used commonly in the various city departments.
- 4—The application of the principles of scientific management to the organization and methods of operation of the various city departments.

In other words, this bureau or board should be a vital factor not only in obtaining information for council, but in the application of efficiency methods throughout the city departments wherever they may be needed.

City Auditor Independent Official.

In 1909 the provincial government enacted a law creating the office of the city auditor, the incumbent to be appointed by council and removable only by it upon a two-thirds vote. This same act specifically defines the functions to be performed by the city auditor.

Office of City Auditor Has Many Commendable Features.

As at present administered the office of the city auditor has many commendable features. The periodic regularity of its inspection of revenue producing offices, its reconciliation and audit of current and arrears of taxes accounts and the detailed audit of the treasurer's general cash accounts are especially commended. The salutary effect of an independent audit of outside departmental accounts from time to time must of necessity be good.

City Auditor Charged with Preventing Departments Overdrawing Appropriations.

The act creating the office of the city auditor stipulates as one of his duties that "the city auditor shall not permit any department to overdraw its appropriations". This power has not been fully exercised. As stated in a previous section of this report, large expenditures have been made in excess of appropriations or authorizations existing at the time of the expenditure. Such expenditures have been with the sanction of the auditor after the board of control and council had approved thereof without, however, having appropriated or authorized the necessary funds. The legality of such practice is, of course, questionable and the auditor should have no discretion in passing

claims for payment unless an appropriation or authorization to provide the necessary funds has been formally provided by the council.

Basis for Audit of Claims Insufficient.

Although an attempt is made by the auditor in passing upon the justness of claims to inquire into the necessity for the expenditure, the prices charged, etc., the present organization of his office does not permit his securing sufficient facts upon which to base his approval. He has no means for independently inspecting deliveries so as to determine whether or not the quantity and quality of materials or supplies invoiced are in accordance with the description shown on the invoice. The present basis for his approval is the certificate from the department that the goods have been received and are a proper charge against the city, and that the appropriate committee of council and council as a whole have authorized payment. The auditor has not before him copies of contracts or specifications under which deliveries may be made, and which should be used as a basis for audit. It is desirable that a small inspection force be attached to the office of the auditor in order that he may at least make test inspections of deliveries and determine therefrom whether or not the city is receiving all that it pays for. It is unnecessary that every delivery should be inspected, but occasional tests by representatives of the auditor's office, without previous notice at points of delivery, has in American cities saved hundreds of thousands of dollars.

Unnecessary Detail Imposed Upon Auditor.

The present procedure necessitates among other things, that the city auditor personally countersign all checks drawn upon the city treasury. In some respects this idea is admirable, but it should not be carried out to the extent of requiring the auditor personally to sign individual salary checks. There is no reason why properly approved payrolls should not be submitted for audit and when approved have one check drawn for the total thereof, which when countersigned by the auditor should be given to the paymaster. The paymaster could then in turn issue checks for each individual item on the roll and thus conserve for more important purposes that portion of the time of the city auditor now devoted in personally affixing his signature to each salary check.

Auditor Should Advise with Treasury Board.

By virtue of his office, the city auditor should be in a position to render effective service to the treasury board in its consideration of

financial matters. Balance sheets, debt statements and other financial reports, so necessary to a proper understanding of the city's financial status should be verified and approved by him before consideration is given thereto by the treasury board. His advice should be a valuable aid in determining a definite financial policy because of the opportunity at his command to obtain a broad view of existing financial conditions and needs.

Administrative Questions Relating to the Debt Limit Limitation of Indebtedness.

The borrowing powers of the city of Toronto are limited by the statutes of Ontario (52 Victoria, Chap. 74), which reads as follows:

"The corporation of the City of Toronto may from time to time pass by-laws, under the terms and conditions hereinafter provided, for authorizing the issue of debentures of the said city to an amount not exceeding in the whole 12½ per cent. of the assessed value of the whole of the rateable property in the city up to the first one hundred millions thereof, and 8 per cent. of the assessed value of said property beyond said sum of one hundred millions as established and shown from time to time by the last revised assessment rolls of the said city."

It is the present custom when figuring the available borrowing power of the city to use as a basis the total assessed valuation as shown by the last revised assessment rolls prepared for the purposes of taxation. These assessment rolls include in addition to the assessment for real property, assessments on income and on the right to do business.

The total assessment for 1912 amounted to \$436,058,549, divided as follows:

Real property assessment.....	\$371,915,193
Business assessment.....	48,598,655
Income assessment.....	15,544,701
Total.....	\$436,058,549

The question is hereby raised as to whether the language of the limiting act above quoted, restricting the limiting powers to a certain percentage of "the assessed value of the whole of the rateable property," should be interpreted to include as rateable property the income and business assessments.

In the United States the prevailing practice in the wording of statutory enactments limiting the borrowing power of cities, stipulates that the assessed valuation of taxable real estate shall be the basis for such limitation, the reason therefor being that real estate is more tangible and stable as a basis for taxation than other more or less intangible bases of assessment, such as income or personal property.

Whether the term "rateable property", as used in the limiting statute affecting the borrowing power of Toronto, was intended to include business and income assessments, has not been specifically determined, the question so far as could be learned not having been raised heretofore.

From every point of view it is more desirable that a substantial basis for limiting the debt-incurring power of cities should be required by statutory law. The assessed valuation of taxable real estate provides a substantial basis, while other kinds of assessment, such as income, business or personal property are unsubstantial. Whether the present practice in Toronto in determining its borrowing margin is legal or otherwise should be ascertained without delay, especially in view of the fact that the city has become indebted practically to the full extent of its borrowing power, and over \$5,000,000 of such borrowing power is assumed by the city by virtue of including as a part of the whole of the rateable property the assessments for business and income.

Rateable Property Defined in Municipal Act.

Section 287 of "the municipal act", in defining the term "rateable property", when used in connection with the levying of rates, stipulates that income and business assessments shall be included. It is questionable, however, whether this definition in the municipal act applies to the term "rateable property" as used in the limiting statute above referred to. This question is particularly pertinent because the language used in section 287 of the municipal act confines the definition of the term "rateable property" to the use thereof in the act itself, or "in any by-law herebefore or hereafter passed which directs the levying of a rate". In any event, whatever action is necessary should be taken once and for all to settle the question as to the definition of the term "whole of the rateable property", as used in the statutes of Ontario, 52 Victoria, Chap. 74.

Sinking Funds Not Deducted in Determining the City's Statutory Borrowing Power.

On December 31, 1912, the several sinking funds of the city, established for the retirement of its debenture indebtedness, represented a total of over \$11,000,000, consisting of investments in city bonds and cash on deposit.

It has never been the practice for the city, in determining to what extent it may become further indebted, to consider as an offset to its funded debt the holdings of the sinking funds which eventually must be applied to the reduction of such funded indebtedness. The sinking funds, of course, were established for the sole purpose of eventually redeeming outstanding debentures and are built up through annual appropriations included in each year's budget, plus earnings or investments made with such appropriations. That such sinking fund holdings are a direct offset to existing debenture indebtedness there does not appear to be any question, and there is no good reason why they should not be applied as such an offset in determining the extent to which the city may become further indebted.

There seems to be some question whether or not existing law would permit the city to apply its sinking fund holdings as an offset to the debenture indebtedness when determining its remaining borrowing power. There should be no such question, and it is recommended that any necessary steps be taken to amend the existing statutes so as to make possible not only the extension of the city's borrowing power, but a more accurate statement of the city's financial status than is assumed at the present time.

Administration of Sinking Funds

The efficient administration of sinking funds requires that those who are charged with this duty shall know what amounts are needed to retire the debt at maturity, and with this information shall take such action as is necessary to protect the city and taxpayers from an inequitable distribution of sinking fund charges.

Sinking Funds Established on an Actuarial Basis.

It is the present practice to include in the annual budget certain amounts to be paid into the sinking funds for redemption of debenture indebtedness. The amounts so included are computed on a 3 per cent. actuarial basis compounded annually. These amounts are usually invested in debentures of the city, only a sufficient cash balance being

maintained to meet current maturities. Many of the investments in the sinking fund bear a greater rate of interest than 3 per cent., which consequently has the tendency to create a surplus beyond the amount actually required to meet outstanding obligations.

A proper administration of the sinking funds should not permit such a condition to exist. Surplus earnings from sinking fund investments, if any, should be applied annually to the reduction of the amount necessary to be included in the budget, and thus maintain the sinking funds themselves on a real actuarial basis and release for the reduction of taxation any excess cash the sinking funds may have earned.

Sinking Fund Investments Sold at a Discount.

It is essential that the integrity of the sinking funds be maintained beyond any question, and their administration safeguarded to such a degree as to make impossible an impairment of their assets.

During 1913 it was found necessary in Toronto to sell some of the sinking fund investments in order to provide sufficient cash to meet maturing obligations. One such sale amounted to over \$2,750,000 and represented Hydro-Electric 4 per cent. debentures previously purchased by the sinking fund as an investment. The price realized on these bonds was more than 17 points less than par, or \$467,500 less than the principal sum represented when held by the sinking funds.

Such practices obviously result in the impairment of the integrity of the sinking funds and should not be permitted, even though there may have been surplus earnings in the sinking fund more than sufficient to make up for any loss incurred through sales of investments at a discount.

Sufficient foresight on the part of the fiscal officers of the city would prevent a situation arising necessitating the sale of sinking fund investments, simply by administering the funds so as always to have sufficient cash available through current appropriations and earnings from investments to meet current maturities.

Present Status of Sinking Funds Not Known.

Comprehensive sinking fund accounts are not maintained from which information respecting actuarial reserves, surpluses or deficits can be readily obtained. No one knows whether or not the present holdings of the sinking funds are sufficient or insufficient eventually to meet their obligations, all because a well-defined procedure has not been established and adopted with respect to their administration.

It is recommended that a study be made of all the sinking funds with a view to determining exactly their present status and thereafter to establish accounts necessary to show at all times the actual holdings and the reserves which must be maintained on an actuarial basis if their obligations are eventually to be met.

Sinking Fund Securities Not in Custody of Responsible City Officials.

The physical custody of the securities owned by sinking funds is not, in Toronto, required of responsible city officials. The practice, it is stated, is to deposit all such securities in banks at the discretion of the city treasurer. Although the city auditor, at periodic intervals and without notice, visits such banks for the purpose of examining and verifying the fact that the securities are intact, such examination does not provide adequate protection, even though the securities are unnegotiable.

It is recommended that the city sinking funds should be administered by a board of trustees especially appointed for the purpose, who shall be held morally and financially responsible for the safe-keeping of securities and otherwise maintaining the integrity of the funds themselves.

Through misapplication and mismanagement of sinking funds, many American cities have had their credit seriously impaired. Toronto should benefit by such experience and adopt without delay a more definite and scientific policy for sinking fund administration.

Lack of Adequate Equipment

Among the essentials to efficient administration is an equipment suited to the purpose. While a systematic study had not been made of this aspect of public business, certain facts have come to attention that suggest the need for further study.

Need for Additional Water Meters.

Only a relatively small percentage of the water supplied is measured through meters. Of approximately 78,000 water services only 3,600 are metered. The unmetered services are charged for according to character of the business or the number of rooms and conveniences on the premises. The charge for unmetered services varies according to the kind of building or business using the water, the regulations

regarding which being fully set forth in by-laws Nos. 4328, 5339 and 5655.

Progressive municipalities have been for a number of years past, and are still, exerting every effort to place all water services on a meter basis. This not only makes possible obtaining adequate revenue for water supplied, but admits of a more equitable distribution of the return of the cost of supplying water by imposing upon those who consume the largest quantity their proper share of such cost.

It has been stated that so far as Toronto is concerned, it is the desire of city officials to install as many meters as possible, but that more progress has not been made in this respect is due to the fact that the city has experienced considerable difficulty in the elimination of sand from the water mains; the consequences of which have been very serious. It is stated that until the problem of sand elimination from service pipes can be solved, the installation of meters on a large scale would be foolhardy. The reason for this statement is that the meter would be ruined in a very short time by the action of the sand on its mechanism and that such action would seriously interfere with the proper registration of water passing through.

Undoubtedly this argument has considerable merit, but whether or not every effort is being made to solve the problem of sand elimination is a question which should be studied carefully, and the necessary steps should be taken at once to remedy such a serious situation.

Office Arrangements.

The office arrangement of the city treasurer's department is not as desirable as it might be. This is especially true of the main accounting office, which seems to be unduly crowded and the lighting arrangements so poor as to require employees working at high desks to face artificial light. This could be readily overcome by rearranging the office furniture and installing a more modern and effective lighting system.

THE ANNUAL REPORT

The proposal is that Toronto shall equip itself with the necessary instruments or customary means for making and executing business plans. For this purpose complete, accurate and prompt information is essential. Without the means for keeping the picture of what is going on before them, it is impossible for officers efficiently to handle the public business. No private concern which has a business of such

volume and complexity could successfully conduct its affairs without a balance sheet and an operation account; no manager of a private business which handles funds would feel safe without a complete, accurate and up-to-date statement of fund resources and encumbrances; no private corporation having a balance sheet would be without the means for knowing the details that make up each class of assets and liabilities; no public service corporation would attempt to operate without data showing cost of services rendered—the facts needed both for the efficiency of management and the determination of prices to be charged; in no private concern could the officers hope to retain the confidence of stockholders or proprietors unless complete information of the kind indicated were made available. Yet in almost all of these particulars the accounts and the reports of the city of Toronto are lacking.

Annual Report of Little Value.

The annual report of the treasury is a compilation of financial statements verified by the auditor, that fills a volume of 750 closely printed quarto type pages made up as follows:

In the front part of the book is a "condensed statement of receipts and disbursements" covering 15 pages.

This is followed by an "abstract of receipts and disbursements" of 22 pages.

This again is followed by a "detailed statement of receipts" of 54 pages and a "detailed statement of disbursements" of 404 pages.

A further detailed statement of disbursements for "local improvements" requires 100 pages.

On pages 561-568 inclusive is found a "statement of current assets and liabilities" and on pages 569 to 572 inclusive a "balance sheet".

Thirty-five printed pages are then given to a "schedule of insurance on property".

The report closes with 91 pages devoted to the subject of "debenture debt sinking funds".

It is submitted that such a report does not fulfil the purposes of a public document. It is defective in many particulars, and obviously so in that

- 1—The **balance sheet**, or the most summary picture of financial conditions, is buried in a mass of detail where it is **all but lost**. The report is not indexed and it is only the man who has the tenacity of purpose and interest to turn through 570 pages who will find the balance sheet at all.

- 2—In the “condensed statement of receipts and disbursements”, there has been an attempt to combine in one form both an **operation account** (revenues and expenditures) and an **account-current** (statement of cash receipts and disbursements) with beginning and ending balances.
- 3—The “abstract of receipts and disbursements” has the same defect as the “summary” that precedes it, with a different classification.
- 4—The “**detailed statements of receipts and disbursements**” are little more than a printed register or lists of individual or detailed transactions of the city for a year.
- 5—The statement of “current assets and liabilities” is misleading in certain respects and fails to bring out essential financial relations. It does not give a clear picture of conditions about which officers and citizens are called upon to think.
- 6—The “**schedule of insurance**” is a serial list of items which does not support and could not support a balance sheet item showing advances for prepaid insurance or serve any other useful purpose except to show what is the total amount of insurance on each building, followed by a summary by totals of the risks taken by each company.

Form of Balance Sheet Used.

The best description and characterization of the form of balance sheet published by the city is the balance sheet shown below:

ASSETS.

Cash on hand and in banks.....	\$ 1,484,714.54
Sinking Funds:	
Cash in banks.....	\$2,146,307.82
Investments	9,109,072.68
	11,255,380.50
Taxes uncollected (provision made for probable losses)	1,454,040.06
Lands purchased by City at tax sales.....	91,777.65
Corporation County of York re Administration of Justice.	10,605.96
Government of Ontario re Administration of Justice.	20,784.74
Deposits in Court re legal cases.....	3,785.00
Personal and Departmental accounts outstanding...	95,408.66
Consumers' Gas Company stock.....	31,587.50
Toronto Hydro-Electric System.....	56,386.30
Local improvement surplus land account.....	1,200.00
Carried forward	\$14,505,670.91

Brought forward		\$14,505,670.91
Advanced on capital account:		
Local improvement		
works.	\$2,493,738.82	
Less: Drawbacks.....	407,159.55	
		2,086,579.27
Toronto Railway track repairs and reconstruction.	851,964.09	
Queen Street high level bridge over Don	338,003.49	
Municipal Industrial Farm.....	84,873.90	
High Pressure Fire System.....	79,195.89	
City and County buildings.....	128,492.33	
Sundry fire halls and police stations...	9,206.12	
Isolation Hospital site and building...	18,368.65	
Special sewers, By-law No. 6462.	20,530.76	
Provincial Hospital, By-law No. 5454..	6,283.65	
Parks acquisition, By-law No. 5654....	18,829.83	
Water Works improvements under sundry By-laws	175,158.01	
Grade Separation, No. 2, and North Toronto.	2,862.39	
Lansdowne Avenue subway.....	82,538.45	
House of Industry building, By-law No. 5602	810.20	
Exhibition Park roadways, By-law No. 5823	20,745.71	
Bloor Street viaduct, By-law No. 6327..	3,834.87	
Western Cattle Market property	53,015.07	
Weston Road bridge.....	16,451.06	
St. Lawrence Market improvements....	19,167.50	
New Union Station site.....	445.00	
Northern stables	3,969.63	
Reconstruction of garbage destroyer...	7,002.64	
Harbor improvements	20,313.26	
King Street subway L. I. rates	1,234.26	
Water Works Improvements:		
Revenue mains and house		
services.	\$680,094.75	
Bonded main, Royce Ave.	1,225.06	681,319.81
Carried forward	\$4,731,195.84	\$14,505,670.91

Brought forward	\$4,731,195.84	\$14,505,670.91
Western Hospital, By-law No. 5630 . . .	51,282.00	
Coxwell Avenue subway, By-law No. 5931	58,642.70	
Fire halls and sites, By-law No. 6247 . .	51,356.21	
Grade separation, By-law No. 5901 . . .	294,810.20	
Civic Car lines, By-law No. 5933	101,673.54	
New bridges, By-law No. 6259	34,186.57	
Registry Office site, By-law No. 6277 . .	30,343.36	
Storm overflow sewers, By-law No. 5628	376,930.92	
Trunk sewer, By-law No. 5167	2,204,395.91	
Water Works improvements, By-law No. 5776	620,725.93	
		8,555,543.18
Sundry amounts to be covered by special receipts and appropriations.		223,495.04
Plant, Equipment, Stores, etc.:		
Board of Works:		
Plant.	\$76,578.35	
Stores.	59,845.75	
		136,424.10
Board of Works, Water Works Branch:		
Plant.	39,250.38	
Stores.	30,691.13	
		69,941.51
Board of Works, Street Cleaning Branch	153,820.06	
Fire Department	225,000.00	
Property Department	60,000.00	
		645,185.67
Properties other than Schools:		..
Exhibition, parks and park lands . . .	3,814,014.00	
City buildings, halls, markets, etc. . .	3,460,711.00	
Fire halls and police stations	714,407.00	
Public libraries	441,213.00	
Carried forward	\$8,430,345.00	\$23,929,894.80

Brought forward	\$8,430,345.00	\$23,929,894.80
Island property	472,458.00	
Properties under lease, etc., including Street Railway right-of-way	4,762,934.00	
Sewage disposal site	151,000.00	
Miscellaneous (including Jail property)	974,028.00	
		14,790,765.00
School buildings, sites and equipment, etc.		6,500,000.00
Water Works buildings, sites, plant, etc.		10,793,128.00
Hydro-Electric System, buildings, plant, etc.		3,841,696.59
High Pressure Fire System		700,000.00
Annual rates on local improvement works collectible from ratepayers		3,668,255.90
Total assets		\$64,223,740.29

LIABILITIES.

Bank advances		\$11,695,763.66
Debentures Outstanding:		
General, City	\$30,582,774.01	
General, late Town of Parkdale	93,000.00	
General, late Town of East Toronto	174,931.97	
General, late City of West Toronto	1,047,149.80	
Township of York School Debt	129,736.10	
Local Improvement, City's share	2,825,033.73	
Local Improvement, City's share, West Toronto	29,914.49	
Local Improvement, ratepayers' share	7,289,745.56	
Local Improvement, ratepayers' share, East Toronto	24,396.59	
Local Improvement, ratepayers' share, West Toronto	24,473.85	
Local Improvement Debt Act 1911	290,844.05	
Toronto Railway pavements	1,817,622.62	
		44,329,622.77
Arrears of taxes debentures, specially secured by outstanding taxes		400,000.00
Carried forward		\$56,425,386.43

Brought forward	\$56,425,386.43
Debenture interest, amount on hand to meet coupons maturing January 1st, 1913.....	1,001,285.22
Bills payable, late City of West Toronto.....	671.65
Real estate sales, proceeds.....	320,252.77
Excess on sale of lands acquired by City at tax sales..	273,035.87
City and County buildings, County of York's proportion.....	84,000.00
Tax refund accounts.....	14,787.69
Police and Firemen's Benefit Funds.....	426,838.30
Contractors' deposits	27,676.33
Special deposits	28,961.71
York Township School Section re annexation.....	49,971.56
Outstanding accounts current.....	752,747.10
Capital account balances unexpended.....	1,441,300.69
Total liabilities.....	\$60,846,915.32

SUMMARY

Assets.....	\$64,223,740.29
Liabilities.....	60,846,915.32
Nominal excess of assets.....	\$ 3,376,824.97

Balance Sheet of Little Use.

It is submitted that the present form of "balance sheet" cannot be of much assistance in thinking about Toronto's financial and business problems, for the reasons that

- 1—It goes into too much detail for a summary statement—so much so that it does not help one to grasp at a glance significant relations which should be brought to public attention.
- 2—In so far as it presents a picture of financial conditions, it is confused.
- 3—There is a commingling of current assets and liabilities with capital assets and liabilities and the resources and obligations of the sinking fund.
- 4—From the statement presented, it cannot be determined whether there is a current surplus or a deficit, nor even what is the present condition of the cash account.
- 5—Current cash, capital cash, and trust cash are thrown together without taking into consideration cash reserves.

- 6—Neither the balance sheet nor the summary of current assets and liabilities is supported in all its items by the details of the report.
- 7—Questions raised by the balance sheet cannot be answered without special inquiry through the department of finance.
- 8—The only conclusion to be drawn is that the balance sheet now used is a make-shift and not an integral part of the reporting system.
- 9.—In several instances, estimated figures are used which do not appear on the books of account.

No Statement of Revenues and Expenses.

Reference has already been made to the fact that there is an attempt in the "condensed statement of receipts and disbursements" to combine an operation account with an account current. Such a practice is fallacious for two reasons: The first is—that revenues and expenses are not cash accounts. Revenues are the resources which are acquired by the city for current use. The city's revenue resources are not necessarily cash. They are in large part increments of holdings acquired through the exercise of powers of sovereignty through levies of taxes. Taxes when levied are revenue, whether collected or not, and may be used as a basis for appropriation and for financing payments through temporary loans. Cost of operation is expenses whether the liabilities incurred in the operation have been paid or not. Simply because a man does not pay his house rent each month does not mean that he has no rent expense till he does pay. It may happen, and frequently does happen, that a city will defer payments or will exchange a liability in the form of a claim for wages for a liability in the form of script. It may happen that certain liabilities are left in arrears by one administration for another administration to meet. It always happens that certain amounts of liabilities incurred for expenses in one year are held to another. The mere fact that a certain amount of money has or has not been disbursed has little or nothing to do with the cost of running the city government during a period reported. The primary purpose of revenues and expense accounts is to determine whether or not the city is running within its means, and if not, what added means are necessary in order to meet its cost. The primary purpose of an account current or statement of cash receipts and disbursements with beginning and ending balances is to determine the fidelity of custodianship of funds and the balances of cash resources which are available.

A second reason why it is wrong to try to combine an operation account and a cash statement, is that in the effort to combine them both results are either impaired or destroyed. The same result is obtained as if a certain number of letters and words were used to tell two stories at one setting of the type. To say the least, such an effort and method would not add to the facility with which the stories might be read.

Fund Statement Inadequate.

The only fund statement which is made by the treasury department is prepared as a part of a cash summary. This is clearly inadequate. What may be called the "general fund" of the city is made up of the resources against which current appropriations are to be authorized. The form in which fund information is given leaves out of the picture entirely the resources other than cash which are available for funding purposes; the appropriations or other outstanding authorizations to spend; the incumbrances on these authorizations, such as contracts and open market orders; the reserves against authorizations which must be held in order to meet the unliquidated balances of contracts; the balance of the fund against which appropriation may still be made. All these and other facts essential to clear thinking about a funding problem have been omitted from the annual report.

Forms of Estimates and Budget Statements.

To the same extent that the annual report is defective, the forms of estimates and budget statements are also lacking in the information needed by the executive, by council and by citizens to think about what is proposed; what financial measures are necessary to carry out these proposals; what measures must be taken in order to finance authorized expenditures; and what amounts should be borrowed, and what amounts should be raised by current taxation and other forms of revenue. Even the departmental estimates submitted do not follow a standard plan. They do not carry with them the information essential to clear thinking about what one branch or another of the city has been spending; whether work has been efficiently managed; whether past purchases have been economically made; whether the amounts asked for are necessary.

Officers Not Criticized for These Defects.

In pointing to some of the obvious defects in methods of report-

ing of the treasury department, officers of this department are not charged with incompetence or neglect. Toronto officials are in the same situation as are the officials of other fast-growing cities. The current work increases rapidly, the daily routine demands on official attention are such that persons in responsible positions have little time or opportunity left to study the business system as a whole, much less to take the time needed to work out constructive plans and obtain the co-operation essential to a successful installation of new methods and procedures. Each day's work must be done or the business will stop. Each day is a full day. The larger the city the more difficult it becomes to make a change (1) by reason of the increasing demands on the responsible officers; (2) by reason of the large number of institutional adjustments which must be brought about to make any change effective. The working out of some systematic method of doing business and the installation of new procedure must necessarily be performed by persons who are relatively free from the grinding details of administration. The only solution is either in a temporary or permanent staff which is not charged with making the decisions essential to direction and control. As a matter of organization, Toronto, like most public corporations, has its full quota of "line" officers and men but is lacking on the "staff" side. So long as matters of this kind are left to men who must keep the wheels of business moving, those in command must find themselves at an increasing disadvantage. Changes may be made, and frequently as a matter of adaptation, but unless the whole subject of institutional needs is taken up systematically, change after change in method will be made under circumstances such that while they may be adapted to getting better results, each change may increase the cost and red tape of doing business.

Toronto has been peculiarly fortunate in having had many years of continuous service of the principal officers in its departments. But the best thing that these officers can do for Toronto and for themselves is to focus public attention on the difficulties of the problem before them in order that they may have the support of public opinion in bringing about an adaptation of organization and methods to service requirements.

**EXHIBIT I—BALANCE SHEET — SUMMARY STATEMENT SHOWING THE ASSETS AND LIABILITIES OF THE CITY
AS OF DECEMBER 31, 1912.**

Current Assets

Cash (Schedule 1)	\$ 488,232.90
In banks	\$ 486,588.00
On hand	1,644.90

Amounts due to the city	1,890,827.73
Uncollected taxes (Schedule 2)...	1,676,370.23
Current	\$987,212.76
Levies of 1908-11.	678,663.65
In arrears ..	\$13,467.64

Less

Reserve for loss	2,973.52	10,493.82
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Water rents receivable (Schedule 3)

Current —

Delinquent —

Miscellaneous revenues—rents due and unpaid	14.00
---	-------

Other accounts receivable (Schedule 4)	214,443.50
--	------------

Other current assets

Undistributed stores	17,317.95
----------------------------	-----------

Coal — waterworks \$3,000.00

Materials and supplies

—works department .. 20,317.95

Advances	2,858,050.79
----------------	--------------

For capital account... \$287,302.97

Construction of high level bridge 85 per cent. of cost to be refunded by railroad companies.

For local improvements

Prepaid expenses ... 77,009.00

Insurance

premiums \$73,224

Court costs

—deposits 3,785

Lands held for sale	91,777.65
---------------------------	-----------

\$ 5,311,579.12

Capital Assets

Current Liabilities and Reserves

Current liabilities of city	\$ 4,758,817.63
--	-----------------

Bank overdrafts (Schedule 1) \$ 3,795,844.29

Checks payable

Vouchers payable

Deposit R. McCollum—loan

Interest due but not paid

Debenture debt

Exhibition mortgage .. 5,104.40

York Township

Cash reserves (Schedule 5)	1,127,795.85
---	--------------

Debenture funds

Special funds

Trust funds

Current surplus (or deficiency)	575,034.36
--	------------

Surplus reserves

Improvement debentures to

Premiums on local im-

be credited to revenue

accounts of subsequent

years

Bridge rentals paid in ad-

vance

License violation fines set

aside for future prose-

cution costs

Deficiency of current assets needed to

provide for immediate demands for

cash and cash reserves

Capital Liabilities and Surplus

Amounts due by city	\$ 783.10
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General Fund

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**EXHIBIT III—FUND STATEMENT—SUMMARY SHOWING THE FUND RESOURCES AND APPROPRIATIONS AND RESERVES
AGAINST THEM AS OF DECEMBER 31, 1912.**

[illegible]

Deficiency of current assets needed to
 provide for immediate demands for
 cash and cash reserves

583,100.29

\$ 5,311,579.12

Capital Liabilities and Surplus

Amounts due by city \$ 783.10
 To York Concrete Paving Co. . . . \$ 111.45
 Note assumed for engine works . . 671.65

Funded debt of city (net) 40,286,985.69
 Debentures outstanding (Schedule
 7) 44,740,016.26
 Less Sinking Fund reserve
 (Schedule 8) 11,266,363.90

Treasury bills outstanding \$33,473,652.36
 Special debenture loan 5,840,000.00
 973,333.33

Capital surplus

Excess of capital assets over
 amounts due by the city and net
 debenture debt 4,070,489.76

Total Capital liabilities and
 surplus \$44,358,258.55

Sinking Fund Liabilities and Reserves

Reserve to meet sinking fund re-
 quirements (Schedule 8) \$11,266,363.90
 Sinking fund surplus

\$11,266,363.90

Special and Trust Fund Resources

Cash held in reserve—general fund \$ 851,421.25

\$12,394,412.65

\$ 851,421.25

jeets while under construction
 (Schedule 12) 2,245,592.52
 Reserve against unnegotiated de-
 bentures for:
 Anticipated discount on debentures
 to be issued,
 General debentures \$ 488,044.35
 Local improvement debentures. 152,440.87 640,485.72

Reserve against unnegotiated deben-
 tures to cover money by-laws for
 future expenditures 3,384,283.40

\$12,394,412.65

Special and Trust Fund Reserves

Reserves for special funds (Schedule
 5) \$ 357,292.93
 Reserve for trust funds (Schedule 5) 493,744.91

851,037.84

\$ 851,037.84

funded by railroad
companies.
For local improve-
ments \$2,493,738.82
Prepaid expenses . . . 77,009.00
Insurance
premiums \$73,224
Court costs
—deposits 3,785

Lands held for sale 91,777.65

\$ 5,311,579.12

Capital Assets

Investments Consumers' Gas Co.
stock \$ 31,587.50
Lands, buildings and equipment
(Schedule 6) *44,159,016.93
Cost to the city —
Less depreciation —
City and Island leaseholds 25,438.88
Construction material in stores
(waterworks) 56,384.08
Undistributed cost of financing . . . 85,831.16
General debenture sales expenses 56,554.62
Local improvement debenture sales
expenses 26,063.94
Debenture special loan expenses. 804.00
European expenses re special loan 2,408.60

Street and sewer improvements . . . 9 . .
Municipal enterprises 6 —

Total capital assets \$44,358,258.55

Sinking Fund Assets

Cash (Schedule 1) 2,157,291.22
Investment (Schedule 9) 9,109,072.68
\$11,266,363.90

*Note: This figure represents balances taken from the books
and does not purport to be actual value. Adjustments
should be made after inventory has been taken.

Schedule attached \$10,950,387.81
City of Toronto account . . . 33,208,629.12

\$44,159,016.93

provide for immediate demands for
cash and cash reserves 583,100.29

\$ 5,311,579.12

Capital Liabilities and Surplus

Amounts due by city \$ 783.10
To York Concrete Paving Co. . . . \$ 111.45
Note assumed for engine works . . 671.65

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Less Sinking Fund reserve
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debenture debt 4,070,489.76

Total Capital liabilities and
surplus \$44,358,258.55

Sinking Fund Liabilities and Reserves

Reserve to meet sinking fund re-
quirements (Schedule 8) \$11,266,363.90
Sinking fund surplus —

\$11,266,363.90

Special and Trust Fund Resources

Cash held in reserve—general fund \$ 851,421.25

\$12,394,412.68

\$ 851,421.25

WHAT THE CITY OF TORONTO MIGHT BE TOLD ABOUT ITS BUSINESS THROUGH ITS ANNUAL REPORTS

Without assuming any responsibility for the accuracy of represented facts, the following statements have been prepared from the totals and balances shown by the books of the department of finance as of December 31, 1912, the last year-end date for which the information desired could be obtained at the time the survey was made.

Exhibit I.—**Balance Sheet**—Summary statement showing the assets and liabilities of the city as of December 31, 1912.

Exhibit III.—**Fund Statement**--Summary showing the fund resources and appropriations and reserves against them as of December 31, 1912.

In the preparation of these two statements it was thought desirable to completely separate the facts which relate to "what the City of Toronto owns and what it owes" from the facts which relate to those limitations imposed on its officers through the establishment of "funds" and the making of "appropriations." For these reasons the figures representing the city's assets and liabilities are set out "in balance sheet" form; while the figures representing limitations and restrictions placed on officers are shown as a "fund statement".

A third pro-forma statement is also shown in the appendix to the report (Exhibit II.), of the kind of fact which is almost entirely wanting in the books of the treasury department, but which should be there in order to give an accurate account of what the city is spending money for, and how it is raising the money to carry on its activities. This statement, which in common parlance would be called "operation account", or a "statement of revenues and expenses", together with a "surplus account" should, in our opinion, be made available in summary form in the annual report as well as in quarterly and monthly reports. These facts should be submitted on forms which would tell the tale of the city's financial relations and results at a glance. They should be so set up that the conditions and results of one period might be compared with the conditions and results of another period, so that officers and citizens interested might see where there are increases and decreases in assets, liabilities, revenues and expenditures.

In our opinion these summary statements or pictures should be the first pages of the annual report. Having had placed before them a bird's-eye view of the city's business, both officers and citizens should then have an opportunity in the pages which follow, to study the significance of each item of the balance sheet, each total and balance in the fund statement and operation account, by reference to supporting schedules.

Significance of the Balance Sheet.

By reference to the statement of assets and liabilities published in the last annual report, it will be seen that the current resources and liabilities are commingled with capital and fund accounts in such manner as to make the table meaningless, or to require those who are interested in ascertaining financial conditions and results to take the time to re-analyze and re-state the facts.

With a view to bringing out the significant financial relations,

the balance sheet should be divided into three parts, namely: (1) those items which relate to current financing; (2) those items which relate to the permanent properties and funded debt; (3) those items which relate to the sinking fund.

Current Assets and Liabilities.

As current assets the balance sheet would set forth (1) the cash on hand in banks; (2) amounts due to the city, such as for uncollected taxes, water rents, miscellaneous revenues and other accounts receivable; (3) advances to capital account, prepaid expenses, undistributed stores, etc. As against the cash on hand would be shown (1) current liabilities of the city, such as bank drafts, checks payable, vouchers payable, and interest due but not paid; (2) cash reserves—that is, amounts which should be held in reserve for the purpose of meeting obligations payable out of the proceeds of sales and bonds as well as for special and trust fund obligations.

Taking the accounts as they stand on the books as of December 31, 1912, it will be seen from the statement that \$488,232 is all the cash that was available in banks and on hand for other than sinking fund purposes. As against this there were bank overdrafts amounting to \$3,795,844; interest due, but not paid, \$946,718, and a current loan of \$16,255, making a total of \$4,758,817 of immediate demands against the city. In addition to this there were proceeds of bond sales, special and trust funds, which should have been set aside and made available for these purposes, amounting to \$1,127,795. In other words, there was a total of current liabilities and cash reserves of \$5,886,612, as against which there was only \$488,232 in cash. The only other assets that were immediately available to the city were uncollected taxes and miscellaneous reserves amounting to \$1,890,827. The total of cash and amounts due to the city was less than half of the current liabilities and cash reserves.

From the balance sheet statement, it also appears that the city has made advances for capital purposes out of current funds amounting to \$2,858,050. This was largely for local improvement purposes: this, to a very large extent, accounts for the necessity for current borrowing—in other words, for the current liability headed "bank overdrafts" amounting to \$3,795,844. The financial condition as reflected by the current balance sheet at once raises the question as to whether it is desirable to carry local improvements through advances from tax collections.

The statement also shows that even including the advances for local improvements and other purposes, there was a current deficit amounting to \$583,100, as reflected by the books December 31, 1912.

Capital Assets and Liabilities.

The purpose of a statement of current assets and liabilities is to show the immediate demands for cash, and the resources that are currently available to meet them. In other words, in this part of the statement is assembled the facts which deal with the present day financial problem of the city. The purpose of the statement of capital assets and liabilities is to bring together the facts which will keep before the city what has been acquired, such as lands, buildings, and equipment for future use, and the indebtedness which the next generation must meet. In this respect the accounts of the city are very effective. While the form of the statement indicates what is carried on the books, this is of very little value, as a large part of the properties belonging to the city are not on record at all. What should be brought out in such a statement is cost of properties acquired and constructed by the city, less depreciation, and the amount of the funded debt, less sinking fund resources available to retire the debt when due.

Significance of the Fund Statement.

In the fund statement are brought together all of the facts which are necessary to show what resources are available to meet the current funding needs of the city, against which are shown the unexpended balance of appropriations, the reserves for contracts, and the unencumbered balances. In this statement is also shown expenditures for 1912 which were not authorized by acts of appropriation, amounting to \$938,570. Accepting the accounts on the general ledger as of December 31, 1912, it would appear that there was a general fund deficiency of \$833,584.

Under the caption "Debenture Fund Resources" are shown un-negotiated debentures and cash in reserve in the general fund, and against these debentures fund resources are set up the unexpended and unencumbered balances of authorizations.

There also appears an item of \$2,245,592 which is in the nature of expenditures for which money by-laws must be passed in order to cover payments that have been made without such authority.

Supporting Financial Schedules.

In an appendix attached to the report (Schedules 1 to 13 inclusive) are shown the details supporting each of the items in the balance sheet or fund statement as they appear on the books at the date taken. These schedules would be made the supporting data in the new form of annual report which is recommended for adoption.

ACCOUNTING METHODS AND PROCEDURE**Summary of Recommendations.**

As has been said, the chief reason why the financial reports of the city do not reflect financial conditions or contain information needed to show how the city's finances are being administered is to be found in the accounting methods that have been retained from an early period. With a view to better adapting these methods to the purposes for which the city's accounting and reporting department is maintained, the following recommendations are made:

- 1—That a new accounting system be installed, comprising
 - a—Files of documents of original records;
 - b—Classified registers for files of documents;
 - c—Detailed ledgers of account;
 - d—General ledgers of significant controlling accounts.
- 2—That each kind of transaction be initially recorded or evidenced by a voucher or written instrument which will have stated on it the nature of the transaction and the steps taken by each officer or person who is responsible for its consummation.
- 3—That in so far as these official steps conform to a regular procedure, the official action taken shall be printed so that the responsible official shall have nothing to do but write his initials or signature in a blank space designated.
- 4—That the description of the character of the transaction and such other formal matter as may be necessary to the document other than that of signature shall be typewritten whenever practicable, and in any case the forms to be so drawn that they will be adapted to making two or more copies at one time by carbon process.
- 5—That when a transaction is completed and the document has been authenticated, as many copies will be available as will be necessary to furnish each person or office to be advised.
- 6—That in the central or controlling accounting office, the documents be assorted, registered and filed serially by class.

- 7—That the registers of documents be used both as indexes to the files and to develop totals of transactions, by classes, to be posted to the general ledger controlling accounts.
- 8—That the original document, or a copy, be registered or posted to the detail ledger, in which would be developed an analysis of the total of the summary accounts carried on the general ledger.
- 9—That the classification of accounts in the detail ledger, be such as to give all the information needed for making up the most detailed business statements required.
- 10—That the classification of accounts in the general ledger be such as to provide the information for making the most summary statement needed for purposes of reporting.
- 11—That any intermediate summaries or totals needed either for purposes of administration or public information be obtained by arrangement of items on forms of statements drawn off from the detail ledger.
- 12—That forms of detailed as well as of summary statements be devised which will admit of their use as trial balances and as current reports, thereby making the reports which are submitted to officers and to the public by-products of the work entailed in proving the accuracy of the books.

Present Accounting System.

In its general requirements, the present accounting system conforms to the procedure recommended. Where it fails is in its details. That is, the present system is one of documents, registers of documents, detail ledgers and a general ledger; but it fails:

- 1—In classification and correlation of the detail and summary accounts.
- 2—In the execution of the original documents or papers representing transactions which lay the foundation for the accounts.
- 3—In that it does not develop forms and procedures needed for analysis of transactions.
- 4—In that forms of financial statements have not been devised which may be used both as reports and as trial balances to prove the accuracy and completeness of the records.

Defects in Classification and Correlation of Accounts.

The classification of accounts has a bearing on three important phases of the work of the accounting office:

- 1—It affects the cost.
- 2—It determines the character both of the detail and of the summary information which may be produced.
- 3—It affects the procedure which must govern the work and practices of administration.

Full Information Without Added Cost.

All of the data which may be desired or required, whether for purposes of administration or for public information, can be had without increasing the present cost of keeping records and making reports. To do this, however, it is imperative that the subject of accounting and reporting be approached from the viewpoint of determining what it is that officers, controllers, councilmen and the public desire or need to know, i.e., what questions officers may ask themselves, or may have asked them about each and every problem of public business. This demand or need having been foreseen and made the basis for systematic classification of accounts, it will cost no more money to assemble the facts of business in such a way as to tell the story in any detail or in summary, than it does to tell it in a partial and relatively useless manner. At the present time every document and voucher representing a transaction must be posted to at least one record. With a double entry system such as is now employed, each transaction must be posted two or more times. This is done as a means of proving the accuracy of the books. With a double entry system opportunity is given to have one kind of a story told by the first posting and another kind of a story told by the second.

By reason of lack of careful consideration given to Toronto's accounting methods, the accounts kept in the treasury department are defective in that

- 1—There is no clear line of division between general ledger or summary accounts on the one hand and detailed accounts on the other.
- 2—Both in the general ledger and in the detailed ledgers whole groups of facts are lacking.

- 3—Even where accounts are not lacking certain groups of accounts may be carried in one set of books independent of the summary and controlling accounts contained in the general ledger.
- 4—The analysis of both revenue and disbursement accounts and expenditure accounts in certain particulars is not informing.

No Clear Division Between Summary and Detailed Accounts.

The general ledger contains much unnecessary detail, as is shown by the statement of assets and liabilities (see pages 47 to 51 of this report). For example, instead of carrying the details of advances in supplementary or detailed books, accounts are opened in the general ledger for law expenses—special court deposits; for deputation—advance account; and a large number of other advances that may better be carried in a detailed record. The general ledger contains accounts with some 50 classes of advances from general account to capital account that are to be subsequently covered by debenture issues or appropriations. Under the heading “liabilities” also, there are many detailed accounts that do not belong in a general ledger. The ledger at present kept is more of a detailed ledger than a summary book.

The general ledger contains separate accounts for the many current appropriations and debenture funds, thus making very unwieldy an accounting medium which should contain only such information as is necessary to produce currently the summary statements showing financial conditions and results. Detailed accounts of individual appropriations and debenture authorizations, in practice, should be maintained in one or more separate ledgers, the accuracy of which control would be established by the summary accounts in the general ledger.

Groups of Accounts Lacking.

The general ledger at least should carry a summary of all transactions, and each detailed ledger should carry all of the information needed about the subject to provide which the record is kept. As a result of the lack of systematic consideration being given to the subject of “What information is needed”, whole groups of transactions are not available.

As at present maintained, the general ledger does not contain accounts showing accruals of revenue. With the exception of taxes

and general rentals, the only accounts relating to revenue that appear on the general ledger are those which show actual receipts of money—i.e., they fail to include revenues accrued and not collected, so that so-called revenue accounts are only an analysis of “cash”.

The general ledger does not show the liability or the contingent liability of the city, for amounts due to contractors for services rendered or to be rendered. It merely shows the amounts paid on account thereof.

All classes of revenue should be accrued as they are earned in the various departments or offices and current reports of such accruals or charges should be sent to the central office by the several departments; from these reports, properly authenticated as vouchers, the amounts which should be collected and accounted for in cash, should be set up.

There is no attempt made to set up accounts in such manner as to produce information with respect to inter-fund relations. For example, it is not shown to what extent the general fund cash has been used for local improvements, capital outlays or special purposes and it is not shown to what extent debenture fund and temporary loan cash has been used to meet current expenses.

Complete accounts of city property are not maintained, consequently there is no present means for ascertaining what has been the cost of things owned by the city, or what has been the depreciation, or whether ample provision has been made for protecting property and equipment against impairment, through appropriations or other funding provisions for repairs and replacements. The whole subject of property administration has been left out of the picture except as it may have incidentally or accidentally found a place. There has been no attempt at systematic treatment or at completeness of information. It has been stated that an effort is now being made to inventory the city's real estate, buildings, equipment and public service utilities with a view to getting on record the facts needed for proper administration. When the inventories are completed this group of accounts may be set up, but before doing so there should be a definite classification and correlation of accounts which will make them a definite part of the accounting and reporting system. The only information which is available pertaining to appropriations is the authorization for expenditure and transfer on the one hand and cash disbursements on the other. No attempt is made either in the general ledger or in subsidiary ledgers to provide all the

information which affects appropriations. The information is not available for setting up encumbrances in the nature of contracts and open market orders for materials, supplies and improvements, to be paid for from these funds, consequently such information cannot be brought out in reports either for administrative purposes or for public information.

Detailed Accounts Not Under Proper Control.

Not one of the detailed records are under the accounting control of the general ledger. In other words, certain groups of facts pertaining to the business are carried in memorandum form and are not administered under a procedure which will provide for determining currently their accuracy. By reason of there being no summary account carried on the general ledger for contracts or detail register thereof, there is no control whatever exercised over contracts except such as may come from independent checking of entries. A number of classes of detailed records are kept, such as the appropriation ledgers which are reconciled to the group totals carried on the general ledger, but this is done only once a year.

Accounts Kept Which are Not Informing.

An analysis ledger is now maintained, arranged by departments and sub-divisions of departments in which provision is made under each classification for the name of the payee and the amount of each voucher. This ledger is not utilized to produce current statements of expenditures and is balanced only at the end of the year at which time a statement is drawn off. In the keeping of this ledger, work is done which might be highly useful in producing information that is not utilized at all. In the first place the record is confined to voucher information and does not give a picture of actual cost. In the second place, when posting to a detailed ledger of expenditures, not only the organization units, but the character of the activities maintained, the amounts which are properly chargeable as expenses as distinct from capital outlays, and a sub-classification to show cost for salaries and wages, supplies, materials, equipment and other objects of expenditures, might be brought out with a single posting.

In developing a record of expenditures the classification should have reference also to operating data or statistics which will give to officers a basis for interpreting costs—i.e., determining the economy of expenditure or efficiency of management, such as the number of square yards of asphalt pavement and repairs which are made,

how many gallons of water are pumped at a given cost during different periods reported, what proportion of the unit cost for a given purpose is represented in labor and the character of the labor used, what proportion of the unit cost is represented in supplies, such as coal, and the quantity and quality of coal used. All of these and many other classes of facts may be developed through the kinds of records that are now being kept if proper forethought were given to the pre-determination of what information is desired. **The net effect of such forethought would be that all of the work done on the records could be utilized for the purpose of producing useful information, and no part of it would represent work that is useless.**

Defects in Original Records.

Any system of records must be for a double purpose, namely, that of giving exact information about business transacted; and that of developing and maintaining such evidence as may be needed either for the legal protection of the corporation, or for fixing responsibility for each official act. It is to serve this latter purpose, that a documentary method of recording transactions initially in municipal corporations has been adopted. As a matter of organization, a corporation which has developed specialized departments or agencies must provide a means whereby one class of persons will attend to the details and another class of persons will assume the responsibility for the authentication and approval of each transaction. As a matter of mechanics, a document or series of documents which follows a transaction is the only form of original record which is adapted to the purpose of giving information to superior officers as to what steps have been taken by subordinates, and to locating responsibility for each official. As a matter of law, it is only those who have personal knowledge of the facts who can be competent witnesses. As a matter of administrative procedure, therefore, it is highly essential that the document or record paper which accompanies a transaction, shall bear upon it such marks and statements of persons who participated in the consummation of an official act as to definitely indicate who are competent to testify and who are to be held responsible. Such a record can be obtained without added cost and should be required as the authority or basis for the institution's accounts. **In other words, the fundamental assumption in municipal record-making should be that the accounts are records of provable facts, and that no authority for an entry should be accepted which is not accompanied by evidence competent to prove the fact.**

It is in their character as evidence, and in their character as records useable for the purpose of locating and determining both official and subordinate responsibility that the documents of business which lie at the basis of the accounting of the city of Toronto are defective. An example of this will be found in the official voucher which is accepted as a basis for a charge against an appropriation.

The voucher is a document certifying to the justice of each claim lodged against the city. It is the authority for drawing a warrant for payment. It originates in a department where the business is transacted. It carries with it the approval of the head of the department. It is sent to a committee of council; then to the treasury department; and thereafter is reviewed by the auditor for the purpose of determining whether the claim should be paid. As a matter of evidence a voucher, which is approved for the payment of a claim, should be supported by:

- 1—The contract or order pursuant to which the delivery or service was authorized.
- 2—A statement on the part of the creditor setting forth particulars of his claim.
- 3—A certificate or other written application of the person responsible for either receiving the goods or accepting the service.
- 4—In addition, when provision is made by the city for inspection, a statement of the inspector should be attached setting forth that the quantity and quality of the goods or services to be paid for conform to the specifications of the contract or the description set forth in the order.

All of this and other evidence necessary to prove the justice of the claim must necessarily come with the voucher to the auditor before he can independently determine that the claim which has been approved by the head of the department and by council should be paid by the city. All this information should be a matter of record:

- 1—As a means of enabling the head of the department to locate responsibility for any failure on the part of the subordinates who are charged with handling the details of the transaction to protect the interests of the city.
- 2—As a means of independent review and audit.

All of these facts can be shown without any further effort than placing the initials of the person who of his own knowledge knows

of the fact at the time that he performs the acts which he is called upon to perform as a part of his regular duty, and without any further labor or delay than to place his initials in a designated place on the documents he is required to check or pass. Notwithstanding these essential requirements many of the vouchers which pass through the treasury department and are audited are lacking in supporting evidence in one essential or another.

If the information contained on documents is to find its way into the proper accounts, in other words, if the accounting records are to tell accurately the story of the city's business, the documents should also provide for indicating the classification or the account to which the transaction is to be posted. This classification should be a matter of official scrutiny. The only way that official judgment can be definitely focused on each transaction, and a specific direction given to bookkeepers for keeping their accounts, is to have some shorthand method or code which can be used as an instruction, the correctness of which can be reviewed when approval is given by the officers in charge. This process corresponds to the old-fashioned process of "journalizing" and without the necessity of writing up a record. While the vouchers show the appropriation account against which checks are to be drawn there is failure definitely to indicate all of the accounting relations which are affected by transactions such as the distribution of expenditures to summary and detailed expenditure accounts. Both from the viewpoint of individual responsibility and official direction and control, the documents representing transactions that are made the basis for accounts, are defective.

Development of Forms and Procedures for Analysis of Transactions.

One of the evidences of lack of systematic planning is found in the failure to develop forms and procedures through which a proper analysis of transactions may be obtained. An example of this is found in the forms used for appropriation ledgers. As has been stated, the present ledger provides only for showing authorizations to spend, and cash disbursements. By using a different form of ledger on one page could be shown all the information needed to give an exact picture of each appropriation, that is, not only the unexpended balance would appear but also the amount and the character of the encumbrances, the unencumbered balance and the amount held in reserve to meet contracts and open market orders. By posting to a ledger designed to produce this information currently, the complete status of each appropriation as well as the status of the general fund may at all times be shown.

In similar manner, forms may be devised and installed to show currently the status of each debenture fund account, the main difference between the debenture fund ledger and the appropriation ledger being that instead of showing current appropriations and transfers the record would carry the amounts authorized and the proceeds from sales of debentures which are available.

Similarly, the facility with which an analysis may be made of expenditures in the records showing expenses of operation, capital outlays, etc., largely depends on the forms and procedure used as well as the provision made for utilizing code designations which would be carried on documents of expenditure and catalogues and specifications of supplies, materials and equipment which may be requisitioned, ordered or purchased.

Development of Forms Which May Be Used Both as Financial Statements and for Purposes of Proving Accuracy of Books.

In any system of accounts the accuracy and up-to-date-ness of which is under the control of a central accounting office, provision must be made for independently establishing on a general ledger controlling totals and balances. Since it is necessary to take off trial balances from the detail records for the purpose of determining the accuracy of postings, and since also the purpose of keeping the accounts is to produce information, it is highly important that the forms of report shall be such as will make possible their use for determining the accuracy of the bookkeeping. In other words, there is no reason why two statements should be prepared—one for trial balance work and another for statement work. To save this duplication of clerical effort, however, it is necessary that careful consideration be given to the classification of the information which is to be drawn off with the view to adapting this to the accounting requirements as well as the reporting purpose. At the present time the treasury department has but few forms for either of these purposes. In fact, the department does not exercise current control over the accuracy of all of the detail and subsidiary books, nor does it attempt to supply at monthly or quarterly periods all of the desirable information which might be drawn from its books.

Legal Obstructions to Good Accounting Practice.

The defects in methods of accounting that have been commented upon may be overcome without changes in law. There are certain obstacles, however, to good accounting that are due to lack of con-

sideration of the administrative effect before their enactment, or to enactment of their provisions without regard to accounting practice. Among these is the law which fixes the accrual and collection of taxes and the law which requires that all vouchers shall be approved by council before payment. There is no reason why the revenue year and the expenditure year should not be brought into agreement. There would seem to be no reason why vouchers after having been certified by proper department as to their accuracy, correctness and justice of claim, should, before being sent to the auditor and by him to the treasurer for payment, be examined and passed upon by different committees of council and subsequently through the board of control be passed upon by the council as a whole. Such action must necessarily be pro forma and can serve no purpose other than that of delay. Even if there might be some audit or review through this antiquated process, it is a control that might be more effectively exercised after the claims have been passed upon by an auditor and the auditor has called attention to matters that should receive the consideration of a committee of council, or of the board of control. There is no greater reason why a committee of council should attempt to pass upon the claims that are submitted in the regular course of business for a city than there is for the vouchers of a private corporation to pass before a committee of the board of trustees or directors. The present practice only tends to confuse responsibility.

Need for Uniform Departmental Accounting.

To simplify and make most effective a modern accounting system in the city treasury department it is of prime importance that all departments of the city government maintain their accounts and render accounting and financial reports in a uniform manner. This not only will simplify the work within departments but will furnish a basis for comparing results that is so necessary in efficient administration.

Standard forms of appropriation ledgers and registers for recording contracts, orders, invoices and vouchers should be devised and installed in every department where accounts are maintained.

At the present time the accounting methods in the various departments differ widely, with the result that it is impossible without reanalysis to obtain reports susceptible of comparison and for use in the preparation of the annual budget and in the published statements of work accomplished.

Uniform departmental accounting is essential in the necessary work of maintaining in the treasury department central control of all departmental accounting. It also lends itself to a comparatively easy readjustment of the accounting staff as a system once mastered in one department provides the city with a corps of civil service employees who may be transferred from department to department without impairing their immediate efficiency.

SUGGESTED ECONOMIES IN WATER REVENUE DIVISION

All of the information needed might be produced without greater cost than now obtains in keeping accounts and making reports that do not serve the needs of the city. There are certain respects in which there may be an actual reduction in cost without in any manner impairing efficiency. For example, what are called the tax collectors might be eliminated without detracting from the effectiveness of the administration. Collectors are employed by the city to deliver tax bills, to make collections and to deliver notices and to follow up delinquencies, their duties being prescribed in detail in the assessment act. One collector is appointed for each of the seven wards and in the third ward an assistant collector is also employed. Each collector receives a salary of \$1,650 per annum, and the assistant collector receives a salary of \$1,350 per annum, making a salary cost of \$12,900 per annum. Some of the functions performed by these collectors are entirely unnecessary and could be performed more effectively directly through the main tax collector's office. For example, the mailing of all of the tax bills, or delivering them over the counter, would be just as effective as to have them personally delivered by the collectors.

Again, the form of the tax bill requires unnecessary labor. The tax rolls after being extended and checked by the city clerk are forwarded to the treasury department. Immediately upon receipt of the rolls the tax bills are written up by a force of clerks temporarily employed for that purpose. The present form of tax bill has three coupons attached, each coupon representing the amount due on the respective instalment of taxes. The location of the property and the amount shown on the coupon is filled in after the tax bill is made out. Much time and effort could be saved by designing a form of bill so that all the necessary writing could be done by means of a carbon process. A still further saving could be made if a billing and scheduling process were adopted which would in one operation write the

bills and prepare a schedule of bills to be collected, the latter for use of the city auditor. Such methods are not infrequent in business, both public and private. While it would require a change in law to do away with the tax collectors, this economy could be gained by executive order. Furthermore, in addition to the saving a distinct advantage would be gained by bringing the tax bills and collections under definite audit control through use of the schedules which would be prepared at the time the bills were made out. This would not in any manner interfere with the present use of banks in receiving money for taxes. In fact, it would facilitate the utilization of banking agencies.

Similarly, there is an unnecessary cost in the present method of handling the accrual and collection of water rates. At the present time there is a staff of twenty-seven men employed as follows:

- 10 turn-keys.
- 12 inspectors.
- 5 meter readers.

All of these men are circulating around the same territory with consequent duplication of work. It is believed this staff could be considerably reduced by organizing a corps, each member of which would be trained to perform any of the work which is required by the three different classes enumerated, instead of each class considering its work specialized and covering the whole territory. A detailed study of the work requirements and the services rendered by the twenty-seven employees will provide the necessary basis for determining the number of employees which would be needed if the three staffs were unified. It is obvious, however, that the force could be reduced without impairment of its efficiency. The turn-keys are required to turn the water off and on as occasion demands, and when not so engaged, are utilized for collecting arrears. The inspectors are employed to visit premises for which application has been made for water service and to report thereon on forms provided, in addition to which they are required to deliver bills for water service. There is no reason why any portion of the services of men receiving \$810 to \$850 per annum should be devoted to delivering bills. This practice points more strongly to the fact that there is no necessity for maintaining such a relatively large field staff.

Again, there could be a reduction in the cost of doing business by the elimination of unnecessary processes. A case in point is the so-called "rating ledger", for which there is no apparent need. All of the information shown on this record is copied from the original

application cards that are required before the water is turned on. The rating ledger could be discontinued and the application card slightly modified in form, could be used in lieu thereof. These cards show a description of the premises, the number of rooms and the various factors upon which the tariff rates are based. They also show the amount of the semi-annual charge. The cards could be filed alphabetically according to location and maintained for reference and billing purposes in the same manner as the rating ledger. In fact, it might be to advantage to have a duplicate set of cards rather than to keep up the book which is now used. In any event, the card form would provide an elastic medium for filing and billing and obviate the present necessity of occasionally rewriting the rate ledger. Changes in ownership and character of service could be made more readily by changing the card and thereby keeping the file free from dead matter, as well as preserving a record of changes which might be used for the purpose of reference whenever needed.

To bring about a discontinuation of all of the unnecessary processes and to make available the men who are now working on such processes for other and useful purposes would require a detailed study and appraisalment of the various working positions in the city.

**SCHEDULE 1—DETAILED STATEMENT OF CASH AND BANK
BALANCES AS OF DECEMBER 31, 1912.**

Ledger

Folio

Treasury Cash

	On deposit	\$ 486,588.00
912	Lloyds Bank, Ltd., London	\$215,471.84
913	C. J. Hambro & Son	24,828.69
914	Canadian Bank of Commerce	125,536.12
915	Bank of Montreal	81,780.24
916	National Bank of Scotland	2,597.02
916	Bank of Scotland	1,878.21
917	U. S. Mortgage & Trust Co.	29,669.22
919	London Joint Stock Bank	4,826.66
911	On hand	1,644.90
911	Overdraft (general banking) (net) ..	3,795,844.29
	Net cash available:	
	General fund cash	(—)
	Debenture fund cash	(—)
	Special and trust fund cash	(—)

Sinking Fund Cash

	On deposit	2,157,291.22
	Bank of Commerce	
921	Consolidated loan .. (S.F.)	\$25,132.28
921	General L. I., ratep'rs' share "	7,957.67
922	Toronto railway pav'ts (Yonge & Queen)	" 15,779.48
922	Consolidated loan	" 30,718.44
	Dominion Bank	
923	General local improvement.. "	45,261.91
	Imperial Bank	
924	Local imprvt. ratep'rs' share "	7,275.34
924	Consolidated loan	" 311,419.25
925	Glen Road bridge	" 10,983.40
	Bank of Montreal	
925	Consolidated loan	" 102,030.01
926	Local imprvt. (ratep'rs' share) "	5,866.55
	Bank of Nova Scotia	
926	Local imprvt. (city's share) "	269,425.53
	Carried forward	\$831,849.86 \$2,157,291.22

	Brought forward	\$831,849.86	\$2,157,291.22
	Standard Bank		
927	Local imprvt. (city's share) "	4,840.58	
928	Parkdale general	9,273.74	
928	Parkdale local improvement. "	8,153.99	
	Bank of Toronto		
929	Consolidated loan	443,600.65	
930	Local improvement	249,073.61	
933	Local imprvt. (city's share) "	424,665.41	
934	Street Railway pavement . .	165,875.56	
	Traders Bank		
929	Local improvement	3,479.65	
	Metropolitan Bank		
932	East Toronto	6,466.77	
932	Globe factory	5,942.77	
	Molsons Bank		
933	West Tor. (ratepayers' share) "	4,068.63	
		\$2,157,291.22	\$2,157,291.22

SCHEDULE 2—DETAILED STATEMENT OF UNCOLLECTED TAXES AS OF DECEMBER 31, 1912.

Ledger

Folio

30-36	Current year levy	\$ 987,212.76
1-29	Prior years	678,663.65
	Levy of 1908	\$ 4,143.92
	Levy of 1909	90,316.25
	Levy of 1910	193,920.57
	Levy of 1911	390,282.91
47	Carried as arrears	10,493.82
		\$1,676,370.23

**SCHEDULE 4—DETAILED STATEMENT OF MISCELLANEOUS
ACCOUNTS RECEIVABLE OTHER THAN FROM REVENUE
SOURCES AS OF DECEMBER 31, 1912.**

Ledger

Folio

62	Due from G. J. Adamson and sureties	\$ 2,651.29
106	Due from County of York for administration of justice	10,605.96
109	Due from Government of Ontario for administra- tion of justice	20,784.74
745	Due from hydro-electric commissioners for interest and sinking fund charges on their bonds.....	56,386.30
327	Due from sundry persons and departments for work done by property department	12,116.93
513	Due from harbor commission for dredging slips....	6,191.50
951	Due from sundry persons and departments for work done by works department	83,291.73
684	Due from sundry persons for removing snow from sidewalks	22,415.05

\$214,443.50

**SCHEDULE 5—DETAILED STATEMENT OF AMOUNTS OF GENERAL FUND CASH TO BE SET ASIDE
AND RESERVED FOR THE PURPOSE OF MEETING OBLIGATIONS AGAINST OTHER FUNDS—
SUCH RESERVE BEING MADE NECESSARY BY REASON OF FAILURE TO SEPARATE THE
CASH.**

Ledger Folio	Total	Special Fund	Trust Fund	Debt Fund
506 Unclaimed wages	\$ 25.15		\$ 25.15	
41 Duplicate and overpayments of taxes	14,643.31		14,643.31	
43 Duplicate and overpayments of taxes (West To- ronto)	144.38		144.38	
51 Amounts due to purchasers for redemption of property	36.02		36.02	
62 Gas Company director's fees held in suspense	1,262.50	\$ 1,262.50		
63 Interest on arrears of taxes held for redemption of tax arrears debentures	273,253.29	273,253.29		
500 Deposit re water main Toronto Hunt Club	1,871.02		1,871.02	
581 Local improvement rates due Township of York	1,901.65	1,901.65		
184 Employees' accident fund	68.01	68.01		
109 Street opening deposits	271.60		271.60	
343 Victoria Memorial Park Fund	608.92	608.92		
345 York Township annexation fund (held for school board)	49,971.56	49,971.56		
349 Proceeds of sales of school property (held for school board)	30,227.00	30,227.00		
401 Guarantee account re water mains	17,567.21		17,567.21	
497 Deposit re water main Quebec Avenue extension	60.00		60.00	
Carried forward	\$391,911.62	\$357,292.93	\$ 34,618.69	

Continuation of Schedule 5.

67	Brought forward	\$391,911.62	\$357,292.93	\$ 34,618.69
897	Contractors' deposits	27,676.33		27,676.33
897	Titanic relief fund	167.58		167.58
897	Muir Memorial fund	2,196.14		2,196.14
900	Hanlan Memorial fund	160.00		 160.00
904	Brown Memorial Fund	247.66		247.66
904	Burns Memorial Fund	770.03		770.03
904	Clara Andrews fund	3.00		3.00
905	Queen Alexandra relief fund	1.00		1.00
905	West India famine fund	65.00		65.00
906	Volunteer Monument fund	1,001.18		1,001.18
906	Police Benefit fund	178,572.39		178,572.39
909	Firemen's benefit fund	187,743.84		187,743.84
910	Firemen's permanent relief fund	60,522.07		60,522.07
367	Accrued interest on debentures sold, etc.	276,758.01		\$276,758.01
		\$1,127,795.85	\$357,292.93	\$493,744.91
				\$276,758.01

SCHEDULE 6—DETAILED STATEMENT OF LANDS, BUILDINGS AND EQUIPMENT OWNED BY THE CITY, AS PER GENERAL LEDGER ACCOUNTS, DECEMBER 31, 1912.

Ledger

Folio

110	Industrial exhibition buildings and properties	\$ 218,201.33	
110	Less industrial exhibition (surplus assets)	133,201.33	
			\$ 85,000.00
917	Less mortgage held by Bank of Nova Scotia		85,000.00
120	Western cattle market property	\$	53,015.07
355	Free public library books, furniture, etc.		65,049.77
399	Waterworks		2,971,600.00
399	Waterworks (Parkdale)		121,340.00
564	Surplus lands acquired for local improvements		1,200.00
557	High level bridge over Don River (15 per cent. city's share cost)		50,700.52
907	Corporation real estate	7,127,859.00	
64	Less sales of corporation real estate	285,914.27	
			6,841,944.73
907	Parkdale real estate		111,588.00
907	Real estate, buildings, etc. (E. Toronto)		210,949.72
907	Real estate, buildings, etc. (W. Toronto)		523,000.00
			\$10,950,387.81
994	City of Toronto account		33,208,629.12
			\$44,159,016.93

SCHEDULE 7—DETAILED STATEMENT OF TOTAL DEBENTURE DEBT OUTSTANDING DECEMBER 31, 1912.

Ledger

Folio

898	Township of York school debt	\$ 129,736.10
	Carried forward	\$ 129,736.10

	Brought forward	\$ 129,736.10
955	Debentures—Arrears of taxes	400,000.00
955	“ —City general consolidated loan	30,582,774.01
958	“ —Local imp., city's share since 1889	2,584,647.41
958	“ —Local imp., city's share previous to 1889	240,386.32
959	“ —Local imp., ratepayers' share	7,289,745.56
962	“ —St. Railway pavements	1,817,622.62
962	“ —Parkdale general	93,000.00
963	“ —E. Toronto instalment	.49
964	“ —Local imp. (E. Toronto)	24,396.59
964	“ —General (E. Toronto)	174,931.97
965	“ —W. Toronto, ratepayers' share	24,473.85
965	“ —W. Toronto, city's share	29,914.49
966	“ —W. Toronto instalment	10,393.00
966	“ —W. Toronto, general	1,047,149.80
967	“ —Local improvements act, 1911	290,844.05
		\$44,740,016.26

SCHEDULE 8—DETAILED STATEMENT SHOWING THE RESERVES SET ASIDE TO MEET SINKING FUND REQUIREMENTS, AS OF DECEMBER 31, 1912.

Ledger

Folio

935	Consolidated loan, 1879 (S.F.)	\$ 454,560.96
935	Consolidated loan, 1889	“ 5,294,346.46
936	Glen Road bridge	“ 10,983.40
936	Toronto railway pavements	“ 525,501.71
937	General local improvements (ratepayers' share)	“ 3,886,161.57
939	Parkdale general	“ 73,182.67
939	Parkdale local improvement	“ 58,553.99
940	City's share local improvement since 1889	“ 932,618.78
940	City's share local improvement previous to 1889	“ 1,803.00
941	General local improvement (E. Toronto)	“ 12,419.96
941	Globe factory (E. Toronto)	“ 12,162.77
942	Local improvement (W. Toronto)	“ 4,068.63
		\$11,266,363.90

**SCHEDULE 9 — DETAILED STATEMENT SHOWING THE
AMOUNT OF INVESTMENTS HELD BY THE SINKING
FUNDS AS OF DECEMBER 31, 1912.**

Ledger

Folio

945	Consolidated loan (sinking fund)	\$ 4,837,323.12
945	Local improvement (ratepayers' share) .. (S.F.)	3,570,726.49
947	Local improvement (city's share)	230,207.61
947	Yorkville consolidated loan	486.67
948	Parkdale general	63,908.93
948	Parkdale local improvement	50,400.00
949	Toronto railway pavements	343,846.67
949	East Toronto	5,953.19
950	East Toronto, Globe factory	6,220.00
		\$ 9,109,072.68

**SCHEDULE 10—DETAILED STATEMENT SHOWING UNEX-
PENDED BALANCES OF APPROPRIATION INCLUDED IN
1912 ESTIMATES WHICH HAVE BEEN RESERVED TO
MEET LIABILITIES, AS OF DECEMBER 31, 1912.**

Ledger

Folio

191	Fire department	\$ 30,885.44
223	Island park and permanent improvements	800.00
247	Market repairs	7,300.00
283	Park lighting	1,475.60
305	Public buildings	8,040.58
316	Public bath house and site	12,871.73
333	Street lighting	3,767.53
410	Motor truck (waterworks)	4,000.00
414	Reservoir special	2,970.00
461	Check valves	4,280.00
493	Waterworks fire mains special	5,238.15
505	New culverts	3,509.52
506	Cement walks opposite city property	8,647.94
526	Engineering services	1,521.49
566	Lavatories construction	29,861.02
583	Fire protection, Parliament buildings	582.01
Carried forward		\$125,751.01

	Brought forward	\$125,751.01
601	New bridges (additional repairs)	8,664.15
697	Sea Wall, works department	14,847.13
699	Sea Wall, parks department	2,569.46
497	Waterworks—Annette Street main	961.24
		\$152,792.99

SCHEDULE 11—DETAILED STATEMENT SHOWING EXPENDITURES IN EXCESS OF CURRENT APPROPRIATIONS AS PER GENERAL LEDGER, DECEMBER 31, 1912.

Ledger

Folio

991	Accumulated overdrafts over estimates	\$418,926.08
	Expenditures not authorized in estimates	519,644.13
179	Deputation advances not accounted for \$	805.20
359	Bank loan discount commissions, etc..	490,533.36
395	Water main, N. Toronto, "Teddington Park Blvd."	263.68
759	Expense traffic experts	14,754.19
781	Resurfacing Dundas Street (Humber- side to Keele)	13,287.70
		\$938,570.21

SCHEDULE 12—DETAILED STATEMENT SHOWING EXPENDITURES TO DECEMBER 31, 1912, ON PROJECTS WHILE UNDER CONSTRUCTION FOR WHICH DEBENTURE BY-LAWS AUTHORIZING THE SAME HAD NOT BEEN PASSED AS OF THAT DATE.

Ledger

Folio

161	City and county building (various accounts) \$	128,492.33
204	New Isolation Hospital site	34.44
205	Isolation Hospital building	15,288.01
210	Provincial Hospital	6,283.65
254	Market improvements (St. Lawrence)	2,916.80
279	Parks acquisition	18,829.83
	Carried forward \$	171,845.06

Brought forward	\$ 171,845.06
321 Fire halls and police stations	5,193.54
325 Municipal industrial farm	84,873.90
348 Technical school building	1,757.46
371-2-3 Fire hall and sites	43,536.41
399-400)	
447-8-9) waterworks (sundry accounts) (net Dr.) .	38,939.61
491-2)	
400 New engine, Main pumping station	17,984.12
402 Royce Avenue water main	1,225.06
403 High pressure fire system	79,195.89
405 House services (water)	322,946.44
415 Waterworks improvements	14,834.02
417 Water main, College to reservoir	88,898.49
453 Pipe laying, revenue mains	357,148.31
492 Waterworks, new boiler at engine house	14,238.09
541 Exhibition Park roadways	20,745.71
553 Grade separation, No. 2	144.25
554 Grade separation, North Toronto	2,718.14
563 House of Industry building	810.20
565 Lansdowne Avenue subway	82,538.45
705 Repaving between street railway tracks	826,223.92
720 Toronto railway pavements	25,740.17
737 Weston Road bridge	16,451.06
765 Special sewers	20,530.76
771 Bloor Street viaduct	3,834.87
994 Miscellaneous accounts (net)	665.18
300 Pape Avenue police station	2,573.71
	\$2,245,592.82

**SCHEDULE 13 — DETAILED STATEMENT OF DEBENTURE
AUTHORIZATIONS, UNEXPENDED BALANCES AS OF DE-
CEMBER 31, 1912.**

Ledger

Folio

189 Exhibition buildings	\$ 159,049.57
197 Registry office site	169,656.64
207 Hospital grant	50,000.00
Carried forward	\$ 378,706.21

EXHIBIT II—SUMMARY STATEMENT SHOWING REVENUE AND EXPENDITURES FOR THE YEAR ENDED DECEMBER 31, 1912

Expenditures by Organization Units—Amount of Expenses or Obligations Incurred, Whether Paid or Not.							Revenue by Sources—Amount Accrued, Whether Received or Not.						
Office or Department Through Which Expenditures Were Made	Total for	Monthly Average for Previous Year.	Cumulative Total for Elapsed Months of Current Fiscal Year	Total for Same Months of Last Fiscal Year.	Increase.	Decrease.	Classes of Revenue	Total for	Monthly Average for Previous Year.	Cumulative Total for Elapsed Months of Current Fiscal Year	Total for Same Months of Last Fiscal Year.	Increase.	Decrease.
General Government Office:							General Government Purposes:						
Legislative							Annual rates						
Council							Real estate						
City clerk's department							Business and income assessment						
Executive and administrative							Other						
Mayor's office							Rentals						
City treasury department							City buildings						
City auditor's office							Walks and gardens property						
Assessment department							Exhibition property						
Court of revision							Street area						
Law department							Public halls						
Commission on claims							Cattle market bridge						
Other							Municipal and county bldgs.						
Judicial							Other						
Less reimbursement of expenses chargeable to:							Licenses						
Provincial government							Liquor						
County of York							General city						
Public service departments and activities other than							Other						
Police							Permits						
Fire							Penalties for delayed payment of taxes						
Health							Fines and fees						
Public hospitals							Police court						
Works							Market						
Property							Weigh house						
Street cleaning and scavenging							City division court						
Parks							City registrar						
Architects							Bath						
Jail							Building permit						
Industrial farm							Elevator						
Other							Pound						
Educational							Hospital patients						
Toronto University							Other						
Separate schools							Waterworks Revenue						
Board of education							Water takers' rentals						
Industrial schools							City water supply, exclusive of schools and library						
Public library							Street Railway Revenue						
Other							Toronto street railway						
							Mileage						
							Percentage of gross earnings						
							Toronto suburban railway mileage						
							Civic car lines						
							Garage Revenue						
							Jail Farm Revenue						
							Revenue from Investments						
							Dividend Consumers Gas Co. stock						
							Removal of Snow from Sidewalk						
							Removal of Waste from Factories & Warehouses						
							Profits from Industrial Exhibition						
							Profits of Sales of Land Bought at Tax Sale						

TOTAL EXPENDITURES

TOTAL REVENUES

32

32

34

37

39

44

49

40

40

40

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41

41

45

49

54

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20

Brought forward	\$ 378,706.21
208 Christopher Street extension	12,121.85
285 Palm House, Allan Gardens	566.95
299 Police patrol and signal service construction	15,038.45
347 Public school building	220,000.00
356 Central public library site	7,378.50
418 Improvements and extensions waterworks	85,295.20
423 Improvements and extensions waterworks	63,209.35
471-477)	
483-498) New intake and water mains (net)	105,818.07
489 Waterworks filtration	48,981.46
507 Ashbridge's Bay reclamation	79,505.39
515 Straightening River Don	952.90
524 Electric power distribution	98,267.79
539 Forcott Construction Company	2,206.16
545 Garbage destroyer	56,639.09
548 Grade separation No. 1	53,908.80
583 Morgue construction	1,568.95
611 Horm overflow sewers	419,364.23
638 New civic car lines	492,660.39
713 Toronto railway pavements	119,907.35
720 Toronto railway pavements	19,185.50
725 Trunk sewer	195,604.09
739 Wilton Avenue bridge	48,186.87
743 Hydro-electric system	908,303.41
755 New bridges, City Hall	324,052.43
761 New civic car lines	37,814.46
776 Coxwell Avenue subway	54,759.30
903 Garrison Commons property	3,034.82
319 Fire halls and sites	153,717.20
350 New school buildings and sites	1,700,000.00
579 Local improvement drawbacks due contractors..	407,159.55
900 Site for police station (Mrs. Kate Woodhouse)..	1,997.50
903 Property purchased from Palmer estate	4,027.02
903 Property purchased from Bowers estate	4,111.50

\$6,124,050.74

ASSESSMENT DEPARTMENT

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GENERAL STATEMENT

In reporting on the administrative methods in an assessment department, it is difficult to draw a distinct line between what is method and what is theory. This is not a report on the theory of taxation, but on the procedure and organization of the assessment department. During the investigation of the methods in use, certain questions of theory were raised, some of which are of fundamental importance to the community. These have been included in the report for discussion and future determination.

Certain financial matters, such as the length of the improvement bonds, have also been considered as a necessary part of a public improvement program, although they do not come within the jurisdiction of the assessment department.

From the standpoint of administrative methods and results, the most serious failure of the department has been lack of adequate publicity. It is only through continuous publicity that it is possible to focus attention of those who are familiar with property valuations on the work of the department in assessing property for purposes of taxation; it is only through publicity that official attention can be called to efficiency on the part of the individual assessors.

VALUATION AND ASSESSMENT

The Two vs. Three Column Assessment System.

The two-column and three-column system of assessing real property probably means nothing to the average citizen, but the rapidity with which the two-column system is replacing the three-column system, which is the one in use by the assessment department of Toronto, is indicative of its importance in the minds of various assessment commissioners whose attention has been called to this subject.

The three-column system of assessing real property requires the assessor first to determine the actual value of the land, second to determine the value of the building, and third to determine the total value of the real property. The columns in the field, or rough book,

which is used by the assessors in the field, are headed as follows: Actual value of the land; Stories; Material; Size of buildings; Value of buildings; and Total actual value of real property.

The law of the state of New York requires that the two-column system only be used; in other words, that the assessor determine first the value of the land, and second the total value of the land and improvements. The value of the improvements is then determined by subtraction. In Toronto the assessor first judges the value of the land and second the value of improvements upon the land.

Results of the Two-Column System.

It has been found by analysis of results that the psychological effect of the independent determination of improvement values is to over-value improvements, through neglect to consider properly obsolescence and depreciation. Conversely, it has been found that where the assessor is required, after having determined the value of the land, to direct his attention to the total valuation of the property, there is less danger of over-valuation of the improvement. We are convinced that this is an important item for consideration regarding the working methods of the assessors in the field.

Three-Column System Prescribed by Assessment Act.

Article 21 of the assessment act prescribes in detail the form of assessors' field books, the manner of acquiring the information, and the form of entry. Information prescribed regarding the assessing of real property is as follows: Column 13, Actual value of the parcel of real property exclusive of the buildings thereon; column 14, Value of buildings; column 15, Total actual value of the parcel of real property. Thus the three-column system of assessing land and improvements is not a departmental regulation, but a statutory provision. The subject is of sufficient importance to warrant a careful study of the individual assessments, in order to ascertain whether the results obtained through the use of the two-column system in New York would not justify an amendment to the statute governing this operation.

Assessment of Improvement on Land

No question regarding taxation and its effect upon the community is being more discussed to-day than the taxation of improvements on land. It is a question which has often been talked of in Toronto, and a question which must be studied still more in the future if ultimate efficiency in assessing real property is to be obtained.

On June 24th, 1912, the council authorized the commissioner of the assessment department to inquire into the system of taxation of various cities in Western Canada. The report of the commissioner is entitled "A report on the taxation of improvements", and, although considerable valuable data regarding taxation and valuation of land are given therein, the commissioner evidently recognized the unique importance of the taxation of improvements and reported accordingly.

The New York Bureau of Municipal Research in no way wishes to question the facts, or to belittle the recommendations included in that report. One important element in the question of reducing the rate of taxation on improvements as compared to land has not been sufficiently emphasized.

In order that the question may be clearly brought to your attention, it will be necessary to quote two paragraphs from the report:

"It seems to me further, that to exempt buildings from taxation, is, in a measure, to drop the substance for the shadow, and from past experience it would seem to me wiser to hold what we have than to experiment with an academic question which has not been tried out. Cities which now exempt improvements can only prove the wisdom of such system after a trial embracing a time of prosperity and a period of depression, and until then it does not appear to me advisable to make any change in the present method of assessing land and improvements. The wonder to me is why the western cities exempt improvements. They have no other property so permanently able to pay the taxes. The rents are enormous, buildings are not erected fast enough to meet the demand, yet further profits are added to the owners of the buildings, equivalent to the taxes on the value of the buildings now exempt."

"In view of all the circumstances, and having regard to the rapid growth of the city and the ever-increasing demands caused by the city's development, I am of the opinion that no change should be made in the present system of assessment. However, were it not for the needs of the city, and speaking personally, I would favor a lower rate of assessment on the value of improvements."

Why a Study of this Question is of Importance to Toronto.

It is a fact that the population per square mile in the city of Toronto is exceptionally high. It has also been recognized as a fact that housing conditions are poor; but full discussion of the effect of

reducing the rate of taxation on improvements has never been given its proper place in the consideration of these problems. If an increased burden of taxation is to be placed upon land, the owner of property would be encouraged to improve the land in order to reduce the rate of assessment on the total capital value of his property. If, twenty years ago, Toronto had recognized that the way to stimulate building was to subsidize improvements through a reduction in the rate of taxation upon improvements, it might not be facing to-day a condition where the city has been forced to furnish the capital for providing decent housing conditions.

The important point for consideration at this time is that something must be done to improve living conditions within the city, and consideration should be given to this fact in deciding what principle should be adopted for distributing the cost of government through assessment of real estate.

Appeals

Notices of assessments, including a statement of the time when appeals are to be received, are sent out upon the completion of the assessment roll. Appeals may then be submitted to the department, after which they are placed on file with the city clerk, and the cases prepared for the court of revision.

In 1912 appeals to the number of 1,766 were listed for the court of revision. In 1913 there were 2,274 appeals. This increase certainly does not indicate decreased efficiency on the part of the department, but rather that special attention has been given to the adjustment of assessed values. When an appeal is received, notation to that effect is made in the field book of the assessor, and the appeal is filed with the city clerk.

Commissioner's Appeals Commended.

If the citizen appealing from the decision of the assessor can convince the commissioner of the department that the assessment is unfair, the department backs the appeal of the citizen before the court of revision. This practice saves the time of the citizen, and gives evidence of a fair attitude on the part of the department. In any event, particular publicity on these appeals is well warranted. It would be of advantage to list in the annual report the details of the appeals backed by the department, showing the name of the appellant, street address, original assessment appealed from and final assessment after revision.

Effect of Publicity on Appeals.

The publication of land value maps and of the assessment roll would no doubt increase the number of appeals in the first year or two after it was put into effect. Subsequently, however, the provision of accurate and sufficient information for use by the property owner would eliminate many appeals now made against the decisions of the assessors. It would, in effect, concentrate the work of the court of revision upon cases where real injustice was being done, or where the problem for the assessor was too complex to warrant a final conclusion without review by the adjudicating body.

Publicity

Publicity and publicity alone will insure equity and fair play in making assessments. The assessment act provides adequate and sufficient means for handling complaints and adjusting errors in the assessment roll, but the court of revision can do nothing on cases not brought to its attention. To do this, the property owner and the general public must be informed.

Publication of Assessment Rolls Needed.

Under the present procedure, the only requirement in the assessment act in the matter of publishing the assessment rolls is that the roll must be on file for public inspection in the office of the city clerk. This provision is meagre, and wholly inadequate to bring to the attention of the great mass of property owners and tenants the true situation in the assessment of property. It is conceded that the publication of the assessment roll in a newspaper or in pamphlet form for distribution with assessment notices, is the only real way to give sufficient information to the citizen to permit him to compare values that he knows. The expense of this proceeding is considerable, but nothing when compared to the moral effect which it has in eliminating inequitable assessments.

It is a fallacy to believe that the average property owner cannot make an intelligent criticism of an assessment roll. He can and will if sufficient information be provided. Publicity is the greatest protection to an honest, efficient assessor, and an abomination to the dishonest or inefficient assessor. There is everything to gain and nothing to lose, and the citizen should insist that it be carried out to the fullest extent.

Publication of Land Value Maps Needed.

If land value maps were to be prepared annually for the entire city, it would be a wise provision indeed if such maps were given the widest publicity. With the land value maps and their unit values as a basis, any property owner, tenant, or interested citizen may calculate for himself the assessed value of land in the immediate vicinity of his property, or anywhere in the city. The preparation of land value maps is a complex and difficult problem, but the use of the unit values contained therein is a simple process, and anyone familiar with the fundamental principles of mathematics could easily determine the land assessment of his property.

Land Value Maps

The results obtained in many cities, particularly New York, Cleveland, Newark, and Trenton, from the use of "land value maps," has proved the advantages to be derived from standardizing land assessment methods. A land value map is merely the publication geographically of the various basic units to be used by assessors in determining land values in various sections of the city.

Definition.

"A land value map is a map which shows, for the areas which it covers, first all streets and water front, and second by figures written opposite each of the four sides of every square the value per front foot of an average inside lot. Where the land is not divided into squares by the city streets, the value per acre is shown."

Determination of Unit Values.

At the present time the division of equalization determines in a general way unit front foot values for various sections of the city. These unit values are made use of by the field assessors in determining the value of land. The lack of standardization, and particularly the lack of adequate publicity, is the chief objection to this procedure.

Suggested Procedure.

Believing that the determination of accurate unit land values and their publication would be of material assistance in making fair and equitable assessments of land, the New York Bureau of Municipal Research recommends the following:

- 1--That the city of Toronto be divided into sections, and that outline maps showing streets and water front be prepared for each section.

- 2—That valuers of the division of equalization be charged with the preparation of the land value maps.
- 3—That such maps be revised annually.
- 4—That the unit values for the preceding year and the current year be shown on the same map.

Advantages to be Obtained from Land Value Maps.

The most conspicuous effect of the use of land value maps is that a means is provided for property owners and civic bodies to check up the work of the assessment department. They would be of particular advantage to the court of revision and to the assessment department in considering claims for reduction in assessments. They would be of the greatest help to the field assessors in making the "original" or first assessment. Experience in cities where land value maps have been used has proved that favoritism in making assessments is reduced to a minimum.

The greatest difficulty in all problems of assessing real estate is to provide a basis for easy audit of the values imposed. Whether this audit is to be made by a responsible city official or by the property owners themselves, is incidental to the fact that such an audit is needed.

Tabulation of assessed valuations is of much assistance for a comparison within a well restricted local district. But the preparation of comprehensive land value maps would provide a basis for easy comparison of values in all parts of the city.

Income and Business Assessments

The relative importance of the business and income assessments may be realized when it is known that of a total assessment in 1913 of \$426,127,851 approximately \$49,000,000 was obtained from business assessment and \$16,000,000 from assessments on income. These figures, taken from the report of the assessment department, show that 15 per cent. of the total assessment comes from these two items—business and income.

Business Assessments.

The specifications of the act, governing assessments on business, have been drawn in much detail. These provisions are in some respects unique. According to the provisions of the act the assessed valuation of the land occupied by the person carrying on any busi-

ness is used in determining the amount of business tax to be paid. Thus an office building which is assessed at \$800,000 may have 100 tenants. While the real estate tax is a lien on the property, the amount of the valuation is apportioned among the tenants according to the assessed value of the space occupied by each. The assessed value of such space is then used as a basis for determining the business tax, so that the tax bill to the tenant will be made to show the real estate tax (proportionate to his space) and the business tax computed on the basis of the value of this space. On the same bill is also stated the amount of his income tax. If it were the sole intention of this act to distribute equitably the cost of carrying on the city's business according to the amount of business transacted the determination of the amount of tax to be paid by the value of the land occupied would certainly not give the desired results. The value of the land occupied by any business does not vary with the value of the business itself. However, the detailed specifications of the act seem to have been designed with the idea of controlling in a measure the social conditions of the city as they would be affected by various kinds of business.

In order to carry out this purpose the act, by penalizing certain kinds of business—for example, the operation of a distillery—has subsidized the carrying on of certain other kinds of business—for example, the operation of a telephone company. If a parcel of land were occupied by a distillery the owner of the distillery would be required to pay a business tax on the basis of 150 per cent. of the land value. If, on the other hand, this same lot were occupied by a skating rink, the business tax would be premised on only 25 per cent. of the land value. If the same land were occupied by a bank, an insurance company, a wholesale merchant or a land company the business tax would be based on 75 per cent. of the land value, etc.

Income Assessments.

For comparative purposes, it was interesting to find that of the total assessment in 1913, less than 4 per cent. was assessments on income; or, in other words, that the total assessable incomes in the city of Toronto amounted to \$15,845,648. Excluding business assessments the income assessments amount to less than 5 per cent. of the total for the city.

It is suggested for consideration that a special investigation of the income assessments be made. We are convinced that special emphasis on the obtaining of accurate information regarding incomes

would increase the revenues of the city from this source and would certainly well warrant the expenditure entailed for the additional force necessary to do this work.

Business and Income Assessments Made Too Long in Advance of the Levy.

Assessments on business and income are made in the year prior to the levying of the tax. Such a procedure necessarily involves a great many adjustments in the assessment. Further, it offers an opportunity for avoiding an exact statement by the assessee of the total assessable income or business. It is essential in any assessment proceeding which involves the determination of the value upon any constantly changing asset, that the determination of value and the levying of the rate be as near coincident as possible. This is a matter of law, and its correction is necessarily outside the jurisdiction of the assessment department. There is every reason to believe that the revenue to be derived from a tax on income assessments could be materially increased if the tax were to be levied within a reasonable time after the assessment is made.

SPECIAL TOPICS

Need for Lot and Block System.

The registered plans and various kinds of assessment proceedings are individualized by plan and lot numbers. The difficulties of this procedure are quite obvious, when it is known that a single plan may comprehend twenty or thirty detailed plans within the boundaries of the original addition. Many subdivisions in turn are re-subdivided at different times, and each division initiates a new plan number. There is particular need here for the establishment of a standard block system, to which, at least for historical and filing purposes, could be allocated standard lot numbers. There is no doubt that much work would be necessary to transpose the present plan and lot number system to a standard lot and block system, but when, as the city grows older, the subdivision of ground becomes more intense, the advantage of a standard block and variable lot number will be realized.

Census Commended.

It is the practice of the department, when the original assessment is levied, to take a census of the section. This is of particular advantage for the preparation of accurate statistics which depend for

their value upon an accurate statement of population and congestion percentages. It is to be hoped that the figures so obtained will be made more available for use through adequate publicity.

Time and Money Wasted in Making Assessment Rolls.

It is hardly necessary to make a detailed survey of any department to point out the waste of longhand copying of assessment rolls, yet nowhere in the assessment department has proper use of the carbon process or labor-saving office devices been effected. The original assessments of land values in the so-called rough books are copied into the final assessment records by hand with pen and ink. Various copies of local improvement assessment rolls, lists, and docketts are made individually with almost identical information on each. There is no doubt that considerable saving in time as well as money could be effected in this department by a revision of forms.

A saving in money is desirable, but the saving of time, particularly as it affects the facilitating of local improvement work, is the most important reorganization principle to be kept in mind in this department.

Equalization of Land Values

The division of equalization is charged with the adjustment of assessed valuations on land. The division consists of two special assessors whose duty it is to reinspect the land of the entire city after the assessed valuation has been determined by the assessors, in order to establish the unit land values for the next year's assessment. The services of the two men in this division are also made use of in determining the values of irregular parcels.

The Procedure for Determining Unit Values Described.

The department receives notice of all transactions involving the transfer or sale of real property and the mortgaging of land. A clerk is assigned to investigate these transactions and also wills submitted for probate where any valuation of land is involved. Any true values which can be ascertained from these various transactions are entered in the assessor's field books, and the information preserved for use by the chief of equalization in determining the unit land values to be used by the assessors in the following year. The assessors' field books with the notation of new land values are then used by the valuers of the division of equalization in the reinspection in the field. When such unit values have been determined, they

are entered in the field books and used by the assessors in making the following year's assessments.

Force Inadequate.

Until very recently the entire revision of land values was carried on by one man. During the past year, however, an additional valuator has been placed in this division. The city is now divided into two sections.

Where unit land values are used, the most important work must invariably be the determination of the units. It does not seem possible that two valutors can cover the entire city of Toronto and readjust land valuations each year. The importance of this work has evidently not been given due consideration, if the size of the division and the compensation of the men therein can be taken as a criterion.

RENTAL DIVISION.

The rental division has to do generally with rents and leases. It is charged with fixing the rental valuations of city-owned property—particularly that located on Toronto Island. It has been a practice for many years to lease city-owned ground on this island for a period of twenty-one years. These leases are renewable. After the rental values have been determined and terms have been agreed upon between the prospective lessee and the commissioner, all assignments, leases and mortgages go to the city solicitor for his approval. This is necessary to a contract as, at his option, approval may be refused. The information concerning each of the properties valued and each case history is easily available for reference. After the lease is closed the rental division collects the rents. The work is of minor character, and we are at a loss to see why it necessitates a separate division in the department, and the time of two men and part time of one stenographer. The valuations could be made by any of the employees who are employed in making real estate assessments. The collections could be a part of the regular routine of sending out bills and receiving money.

Need for Controlled Financial Stationery.

The survey reports have repeatedly pointed out that the straight carbon duplicating process can never be used as a basis for audit of money received. In other words, the present method of issuing receipts for rent and other incidental collections provides no proper basis for the auditor, treasurer or any one else to determine the amount of money received.

The survey reports have always recommended the use of a controlled financial stationery receipt, where the individual receipts will be known by document number, and subject to an audit by the city auditor at periodic intervals. The receipts should be printed in such form and with a proper graduating stub, so that the separating of the original from the duplicate will set out in the graduated stub the exact amount of money for the receipt of which the instrument is issued. In the case of rents and other similar accounts, where it is possible to accrue the revenue in advance of the actual payment, a system of pre-billing and control of amounts due through amounts receivable would probably be preferable.

The graduated stub receipt is most advantageous as an instrument to be used where revenue is accrued coincident with the collection of cash. Either method, however, would be better than the one followed at present.

Real Estate Division

In general the duties of this division consist of the valuation of land and buildings for expropriation purposes on street extensions, sewer easements, rights of way, etc.; preparing estimates of cost; and providing data for proceedings before the official arbitrator. It also investigates claims for damages in relation to changes of grade, and is concerned with the apportionment of benefits in cases of street widenings.

As in the case of most special investigating bodies, the ultimate determination of efficiency or inefficiency means the detailed investigation of a great number of individual cases. This survey is essentially a survey of administrative methods, and it would have been impossible in the time allotted to the assessment department to investigate the detailed procedure and results obtained in various proceedings. The cases cited are typical of principles followed, and principles of procedure are what are to be criticized in this report.

The organization of the division of real estate is typical of the general divisional organization of the assessment department. It has been built up largely around the abilities and capabilities of men rather than upon principles of association of like work.

Basis for Renewed Leases.

Four per cent. of the value of the land is used as a basis for the leases. In the twenty-one-year leases a rate is established for the first ten years, to be adjusted for the remaining eleven years of the life of the lease.

According to the statement of the commissioner, the actual value of the land, determined after an investigation of property transfers in the immediate vicinity, is used as the capital value in determining the actual rental rather than the assessed valuation of the land for purposes of taxation.

By using 4 per cent. of the true value of the land rather than 4 per cent. of the assessed value of the land a much fairer return accrues to the city.

Nevertheless, considering the fact that Toronto is growing very rapidly—doubling in population in nine years—and that increase in population naturally increases the value of land, we do not believe that a 4 per cent. return on the true value of the land at the beginning of a ten or eleven year period is a fair return on the prospective value of the land.

In cities where there is a normal or comparatively small growth in population and where the unearned increment on land accrues very slowly, the 4 per cent. basis would probably be fair. The city could, in all justice to its tenants, increase the return from the annual rental on city lands by providing for a periodical revaluation in the contract as against which the 4 per cent. rate would be applied.

INTER-DEPARTMENT PROCEDURE

Cumbersome Procedure for Removing Encroachments.

An example of the involved procedure required, in part because the city surveyor is attached to the assessment department rather than the department of works, may be found by following the various stages of an encroachment proceeding. Supervision over encroachments is ostensibly under the department of works, and the original inspection for determining the existence or non-existence of encroachments is done by inspectors of the department of works.

A report is prepared and sent to the work commissioner, who in turn writes to the assessment commissioner, who forwards the report to the city surveyor, where a detailed survey is made and a plan prepared. The plan in detail is returned to the assessment commissioner, from the assessment commissioner it goes to the works commissioner, and from the works commissioner to the works committee.

Street Extension Procedure More Involved.

The procedure involved on a street extension proceeding is even more cumbersome. The works committee instructs the assessment

commissioner, who in turn instructs the city surveyor to make a survey and show the probable lines of the extension, which survey and plot become the basis for a joint report by the works and assessment commissioners after the department of works has inserted upon the profile the exact line of the proposed street extension.

The joint report of the works and assessment commissioners becomes the basis for the submission of the by-law which, after being passed by council, is returned with the plan to the city surveyor. Assessment notices and notices of proposed expropriation are then sent out by the assessment commissioner upon legal descriptions furnished by the city surveyor, after which the apportionment of the assessments is made and the amounts due are collected.

Proper Organization of Department Would Help Eliminate Delays.

Proper organization of the general government machinery would eliminate much of the delay caused by the present procedure, but the placing of the city surveyor's division in the department of works would also simplify the procedure.

CITY SURVEYOR

Although the office of city surveyor under the present organization is a part of the assessment department, the duties of this particular division are so clearly defined and in most ways so distinct from the other functions of the department that it is not difficult to consider it as a distinct organization.

City Surveying an Engineering Function.

In general, the duties of the city surveyor are, to define the limits of the streets, to prepare detailed descriptions in various expropriation proceedings, to plot encumbrances, to make surveys for street extensions, and to supervise the workings of the "city and suburbs plans act". From this description of the duties, it is obvious that the functions of the city surveyor are essentially engineering in their nature, and are unquestionably more closely related to the various activities of the department of works than to the assessment department.

Co-operation Difficult.

The placing of the city surveyor in the assessment department, where the staff is completely separated from the other engineering activities of the city, has developed a non-co-operative situation. There is no other work in the assessment department which is so essentially of an engineering character as the city surveying. The

commissioner of the department is not required to think in engineering terms, or to supervise engineering matters in any other division of his department. Thus the city surveyor's division is an independent organization unit, carrying on its functions practically without contact with the other organization units of the department.

Considered from the standpoint of association of like work, this division should be transferred to the department of works where the general supervision would be entrusted to an executive selected for his ability to administer engineering problems. The present situation is fair neither to the assessment commissioner nor to the city surveyor.

City Surveyor Could Supervise all Surveying.

There are, at the present time, approximately sixty draftsmen and surveyors in the department of works, whose work is comparable to the work of the employees of the city surveyor. Moreover, as has been pointed out in the survey report on the department of works, there is need for centralization and better supervision of this function in that department. It would be possible for the city surveyor, qualified as the position is by law and restricted to a certified Ontario land surveyor, to supervise very effectively the surveying and drafting of the entire city government. A bureau of design and survey could be established as a section of the department of works, under the immediate supervision of the city surveyor.

Office Arrangement Poor and Unsafe.

Sometime ago a part of the attic of the city hall was set aside for the use of the city surveyor and his staff. Although the light is very good, there is too little floor space, and the entrance-way is quite inadequate. In addition, unprotected woodwork in the gables of the city hall and wooden stairways and partitions make the fire risk entirely too great to be countenanced by any city government. It would be difficult, if at all possible, for the employees themselves to get away safely in case of fire, to say nothing of the saving of official plans, assessment books, field books, and other records stored nearby.

CITY PLANNING

Good Results Already Obtained.

The city of Toronto is to be congratulated upon the results obtained in carrying out the general grant of power given by the "city and suburbs plans act" of 1912. With a very limited appro-

priation for this work, and a comparatively short time of operation the results are excellent and worthy of continued support in the future.

More Power Needed for Readjustment of Existing City Plan.

It is to be hoped that future legislation will define more clearly the powers of the city government for constructive city planning within the present city limits and for additions already plotted. If a readjustment of an existing plot is necessary for the proper development of the city plan, the replacing of the streets seriously affects the proportionate values of the lots. The city at the present time has no clearly defined rights and powers to compensate property owners for decreased property values. What is needed is specific authority to counteract the rise or fall of lot values caused by a readjustment of the streets—where, for example, one street would be closed and another opened two hundred feet away.

The present powers of the city for expropriation of land for highways and the apportionment of benefits cover only half of the problem. Under a general grant of power in the municipal act, if, by any act of its own, the city alters the grade of any street or in any way decreases the property values on the street it may compensate the owner so damaged by mutual agreement or arbitration. This is an authority granted to the city to satisfy the requirements in individual cases where there is an alteration of grade or the opening or closing of any street. What is needed is a clean-cut definition of rights and powers for readjustment of street and lot lines according to city planning principles.

Appropriation for City Planning Should be Made Each Year.

The start has been made, but the continuance or discontinuance of the policy, both within and without the present city limits, will determine eventually the success or failure of the program. **Due to the fact that the ultimate results of city planning work can never be fully appreciated until many years after the actual work has been completed, it is essential that something be done either through a very positive public opinion or mandatory appropriation acts to insure the continuation of this work.**

IRREGULARITIES IN EXISTING CITY PLAN

As examples of what should be avoided by proper street planning and what should be kept in mind in street widening and street exten-

sion work, it is only necessary to inspect a street map of the city. Starting north on Yonge Street, from King Street to Glen Avenue, there are 35 cross streets intersecting Yonge Street from the east. Of these 35 intersecting streets, 28 either do not continue on the west side of Yonge Street or have not been continued in a straight line. On Bloor Street, starting west from Yonge Street and extending to Dufferin, there are 31 streets intersecting Bloor Street from the north. Of these 31 streets, 24 are out of line with their continuation on the south side, or have not been continued.

It would be unwise to attempt to adjust all of these differences to a mathematical survey, but there are a number of streets laid out on the city plan which have not been actually cut through. A careful study of these streets should be made in order to determine whether city planning principles have been violated in their laying out.

Expropriation of Land for Highways

The question of the widening and laying out of streets and the relation of the assessment department to this function, has already been touched upon in the sections of this report referring to the city surveyor. This activity is intimately associated with the functions of the real estate division of the assessment department. The apportionment of benefits and the determination of damages, the valuation of property and similar work connected with street widening or opening, is the work of this division.

It is unquestionably true that in carrying out a street widening or a street opening, economy in cost is very desirable, but city planning should not be sacrificed for economy alone. When the investigation of this division was in progress, a map of the Benson Avenue widening was inspected. Negotiations were then in progress for the purchase of the property affected by the widening. It seemed unfortunate indeed that in this work, where considerable expenditure was involved, the plan provided for an offset in the street. There is nothing much more detrimental to a city plan than offset streets. They are unsightly, and they are a serious inconvenience to traffic. The principles of city planning, so ably carried out in the unplotted section of the city, should be enforced wherever possible within the city limits. Street widenings and street extensions in old sections give opportunity for promulgating this work, which should not be neglected.

IMPROPER TERMS OF LOCAL IMPROVEMENT BONDS

The term of bonds issued for financing local improvement work is about twice as long as would be necessary if proper financial methods were used. On an average, allowing for delayed payments and forfeited rights, the average life of the bonds would be approximately five years. But under the present practice, all assessment bonds are issued for a term of ten years, necessitating the investment of nearly 50 per cent. of the bonds as sinking fund moneys. Considering that the money costs the taxpayer approximately 4 $\frac{1}{2}$ per cent., and that sinking fund moneys held in cash return only 3 per cent., the loss entailed by this procedure is obvious. By issuing a form of serial bond, redeemable at any time after five years from the date of issuance, the high cash balance of the local improvement debentures sinking funds could be reduced and a substantial saving to the taxpayer effected.

OFFICE METHODS

Card Records of Local Improvement Work.

In the assessor's division a card record for the control of various local improvement operations has been established. For each local improvement job, an individual card is made out showing the location of the work, the legal dates, the class of work, and such other similar information as is available. By a differential filing scheme, these cards are transferred progressively through five filing groups. The last group is for completed jobs, and the other four are progress files. With such a system, an excellent control over this kind of work could be obtained.

Card Record Inaccurate.

In attempting to test the efficiency of this card control, an investigation was made of the progress file containing the card records of local improvement jobs which had been completed except for the litigation over contract terms or the apportionment of the cost. Many of these cards showed that certain local improvement jobs had been delayed for several years.

At the request of the investigator, the head of this division made up a list of the jobs which had been longest under way. This list was forwarded at once to the head of the division of accounting and purchasing of the department of works, asking that an audit be made

of the records in the department of works in order to determine what was causing the delay in the completion of these jobs. In tracing the course of these particular improvements through the department of works, it developed that three of the jobs from the card record in the assessment department, which were ostensibly pending, had really been completed.

Accompanied by the chief accounting official of the department of works, these contracts were traced through the accounts of the treasurer's department, and it developed that the card record of the assessment department was in error—the work having been completed and the assessments levied.

Advantages of Card Record Should Not Be Lost.

The deduction must be that very little use has been made of this card record to facilitate the progress of local improvement work, for if a weekly check had been made on all work under way in order to discover the causes for delay, this situation could not have arisen.

The card record of this work is of great importance, and could be made much more useful if a periodic audit were made on all delayed contracts and the results of such investigation, in summary report form, sent to the works committee, the commissioner of works, and the assessment commissioner.

Revision of Office Methods Would Help Eliminate Lost Time in Local Improvements.

In the report on the department of works, it was pointed out that it took on an average thirteen months to complete a public works contract. This did not include the additional time consumed by the assessment department in apportioning the cost of the improvement. Of the thirteen months, however, eight and one-half were consumed by the general government bodies, of which the assessment department was considered a part. Thus in the total elapsed time on local improvement contracts, the assessment department not only consumes time in apportioning the cost of the improvement, but is also to be charged with a part of the time consumed before actual construction work on the contract is started. It is important to the community that the time consumed in starting and completing public works operations be reduced to a minimum. It is difficult indeed to calculate the loss to the community by the interruption of traffic through the closing of a street.

The provision of new forms and a revision of office methods in the assessment department would assist in facilitating the completion of the local improvement works.

Need for Steel Filing Cases.

In view of the inadequate fire protection, it was surprising indeed to find that no provision had been made for protecting the great mass of valuable plans and assessment records on file in the various offices of the department. What filing cases there are, are of wood, affording absolutely no protection in case of fire. Most of the documents are stored on wooden shelves.

It is unnecessary to elaborate upon this subject to point out to the citizens of Toronto that registered plans, original drawings of additions, and new plots, and assessment books could not be duplicated if lost, and that adequate protection from fire and theft should be provided immediately.

WORKS DEPARTMENT

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GENERAL STATEMENT

The survey of the department of works was undertaken at a time when the entire organization and administrative procedure were undergoing many changes, instituted during the incumbency of the present commissioner. The revolutionary character of these changes may be evidenced by a short review of the forms and records. Practically every accounting form, report or engineering summary now in use has been developed and installed within the last year. Of these new forms, particularly those relating to the control of field work, the best summaries and administrative records are those which have been in operation for the shortest period—some of the reports having been in use less than a month when the field survey was first taken up. In the division of accounting and purchasing, great improvement, in both organization and procedure, has been effected within the last year. No form record or report of any fundamental value now in use has been in operation more than a year.

The present administration is to be commended for its initiative and resourcefulness in dealing with these reorganization problems. Much of this new procedure is still in a transitional stage, and there are many other changes proposed, but not yet in operation. In this report many of the uncompleted installations in the department will be criticized in considerable detail, in order that necessary corrections may be effected before the completion of the work.

These are current administrative problems, constructive criticism of which is usually, and has been in Toronto, welcomed by the department. More important from a critical standpoint, however, are those inefficiencies in organization and administration which have been developing for a number of years, either through lack of vision or pure inefficiency on the part of the executive personnel. It is obvious at once that responsibility for such conditions cannot be charged solely against the department of works or its present administration. What is essential now, is not the centering of responsibility for past failures, but rather the elimination of the present defects. If this be done the emphatic criticisms in the following report will have carried out their purpose.

SUMMARY OF RECOMMENDATIONS

In order that the problem for the future may be presented distinctly, the constructive suggestions which are included with the criticism of present conditions in the body of the report have been summarized in the form of a program of recommendations. These suggestions may be summarized as recommending:

- 1—Centralization of working forces as an essential to efficient management, specifically by:
 - a—Central stenographic division;
 - b—Central permit division;
 - c—Central drafting and surveying force;
 - d—Central inspection force;
 - e—Central payroll division;
 - f—Return to former method of operating street cleaning and garbage collection as section of department of works.
- 2—Reduction of stores force.
- 3—Care in seeing that each class of employees is kept to its own kind of work.
- 4—Change of methods of appropriation control by new accounting procedure and administrative practice.
- 5—Revision of contract accounting.
- 6—Installation of adequate system for keeping cost and expense records.
- 7—Establishment of repair fund for outside work.
- 8—Standardization of permit forms.
- 9—Revision of forms and methods in street opening permits.
- 10—New stores ledgers and periodic audit.
- 11—Introduction of adequate time and service records.
- 12—Revision of report forms.
- 13—Improvement of form and prompt publication of annual report.
- 14—Establishment of general ledger control of subsidiary accounts.
- 15—Provision for prompt payment of department bills.
- 16—Consolidation of departmental reference library with municipal reference library.
- 17—Adoption of plan by which street cleaning force will make light street repairs.
- 18—Study of relative efficiency of large and small sewer catch basins, with reference to cost of cleaning.
- 19—Adoption of definite program for sidewalk improvement.

- 20—More intelligent diversion of traffic from streets closed for repairs.
- 21—Citizen backing of works department in program to rid the city of overhead wiring.
- 22—Advisability of department doing all its own teaming work.
- 23—Sending of notice to property owners affected, when street is to be torn up by construction work.
- 24—Putting construction and maintenance of park roads under jurisdiction of department of works.
- 25—Preparation of complete records of all sub-structure street conditions.
- 26—Steps to expedite the performance of public works.
- 27—Substitution of unit-cost for "lump-sum" bidding.
- 28—Substitution of city work for present contract system in laying water mains.
- 29—Revision of laws relating to local improvements in order to:
 - a—Stop the present practice of charging a part of maintenance against abutting property;
 - b—Avoid the necessity of paying for repaving and reconstruction by local assessments;
 - c—Get away from frontage plan of assessments.
- 30—Adoption of a municipal civil service.

Centralization of Working Forces as an Essential to Efficient Management

Experience of most large corporations and many cities has proved that centralization is of fundamental importance in eliminating waste. Economical use of equipment or personnel is impossible without it. The department of works offers no specially unique problems which would make centralization ineffective in its organization.

Central Stenographic Division.

A central stenographic bureau is an aid to efficient office management. It eliminates unnecessary noise in accounting and administering offices, usually reduces the force, and increases the quality of the service.

Central Permit Division.

A central bureau would reduce the force, simplify the procedure, and serve the convenience of the public by establishing one known place at which to make application for any kind of permit.

Central Drafting and Surveying Force.

Surveying and drafting are standard for practically every kind of public work. Draftsmen and surveyors in large numbers are now scattered from one end of the city hall to the other, under the supervision of five different heads of sections. Centralization would improve the service, decrease the cost, make possible better quarters for the employees, make supervision easier, eliminate waste time and assist in creating better inter-bureau co-operation.

Central Inspection Force.

Different kinds of inspection in public works do not require essentially different knowledge or training on the part of inspectors. One force of inspectors could be directed more effectively, with a saving of both time and labor. The greatest advantage to be gained would be in the patrolling of streets, which, through such a central inspection force, could be put on a basis of genuine effectiveness.

Central Payroll Division.

Pro-forms of payrolls are now made out individually by every section and sub-division. A central payroll division would greatly facilitate the preparation and materially decrease the cost of getting out all the payrolls.

Street Cleaning Proper Function of a Works Department.

Only excessive administrative difficulties warrant the separation of street cleaning and garbage removal sections from a works department. Such causes surely do not exist in Toronto. By putting street cleaning and garbage removal back within the jurisdiction of the department of works, the overhead expense would be reduced, and better co-operation between roadways and street cleaning sections brought about.

Reduction of Stores Force.

Present methods of purchasing and controlling supplies and materials require too many employees. Reduction in force should be the first problem taken up after the present installation has been completed.

Employees Should be Used for Work They Are Fitted For.

In some places in the department operating employees are doing clerical work. This means poor clerical service and neglected operating service. A storekeeper with little work could certainly relieve the district foreman of clerical duties.

Methods of Appropriation Control Should be Revised.

Appropriation control hinges, to some extent, upon the form of budget in use. The present budget form has no standard classification of accounts, and has a tendency to combine in one appropriation account several different kinds of funds, without proper segregation. The appropriation ledger is not easy to audit, and is cumbersome and expensive to operate. A number of detailed appropriations have been exceeded, although by how much it is almost impossible to determine. To cure these conditions, there should be revision of the present form of appropriation ledger and liability journal, the practice of crediting revenue receivable directly against tax levy appropriations should be discontinued, and rotary funds should be established for various plant accounts and special work. The department should keep within its detailed appropriations. A reconciliation of the auditor's and the department's books should be made each month.

Revision of Contract Accounting.

The present system of keeping various contract accounts, cards, etc., means much duplication of work. Proper contract ledger forms would eliminate much work, and effect a saving in force. In some cases, card records are used for information which must remain current over a period of several years. Such permanent records should be in bound books. It is very hard to obtain physical or financial facts concerning the department from the manner in which its records are posted and filed. The entire contract procedure should be revised—details for such revision are included in the body of the report.

Revision of System of Keeping Cost and Expense Records.

The present accounting system lacks proper unit cost records, job costs, and expense summaries which might show the financial conditions of current work. These, if properly kept, would show clearly the exact financial status of all current work. It is impossible, without such cost records, to tell whether the department is getting full value for the money expended in public works. Cost records are a gauge of a department's efficiency. The report recommends that accurate job costs be kept, with standard sub-accounts for various details of the department's work.

Rotary Fund Should be Established for Outside Work.

In order to eliminate certain difficulties which arise through the control of accounts receivable, the report suggests that an individual

rotary fund be appropriated for this purpose, and that all expenditures for outside work be charged directly to the rotary fund, and all deliveries received for outside work be shown directly against such fund.

Standardization of Permit Forms.

Since it is the printing, form, color and general appearance of permits, rather than a signature upon them, that makes them distinctive and effective as official documents in the field, the report suggests that all permits used by the department be made of standard size and uniform arrangement and appearance, subject to the consent of the city auditor.

Revision of Forms and Methods in Street Opening Permits.

A revision of the form and method of issuance of street opening permits would effect a great saving. The report recommends that preliminary deposits should be required from applicants for permits to cut into a pavement, and that every permittee be charged for the cost of supervision, inspection and issuance of permit.

New Stores Ledgers and Periodic Audit.

The present form of general stores ledger is cumbersome and expensive to handle. The report suggests that new forms be devised and periodic audit be instituted.

Adequate Time and Service Records.

Every salaried employee in the department should be required to keep an individual time sheet, and foremen of labor gangs should make daily reports of hours and nature of the service performed by members of their gangs.

Revision of Field Report Forms.

Adequate report forms and a proper use of carbonizing methods would greatly decrease the amount of unnecessary and ineffective work now done in the department. The report suggests that one of the accounting staff of the department be assigned immediately to revise all forms of reports, for all divisions.

Criticism of Annual Report.

The annual report of the department of works is the scale by which citizens may measure its efficiency. The annual report is criticized as being without any current value because of delay in publication, as being too long and not in proper form. It is suggested that the annual report be printed immediately at the close of

each year, that it contain no more matter than is necessary to a clear statement of the work of the department, and that it present facts and figures of value in such a way as to make them most easily understood, especially by means of charts, graphs, and comparative tables.

General Ledger Control of Subsidiary Accounts.

The final development of the accounting procedure of the department should be the establishment of a general ledger control of subsidiary accounts and records. This has not been accomplished as yet, and the report points out how lack of foresight in the design of subsidiary ledgers will cause unnecessary work when this problem is eventually taken up.

Delay in Payment of Bills.

The department now suffers by reason of the system under which much unnecessary time is consumed in the payment of bills. There is no reason why the city should not obtain cash discounts by prompt payment. A revision of the system of audit, and inspection of claims, requiring the auditor and commissioner to assume moderate responsibility, would make prompt payment possible.

Consolidation of Departmental Reference Library and Municipal Reference Library.

Admirable work is being done by the departmental reference library, but better results would follow the consolidation of this library with the general municipal reference library in the city hall.

New Plan for Light Street Repairs.

Light repairs to unimproved streets are now made by section-men operating through various district offices. The report recommends a trial of the so-called "German plan", by which the street cleaning forces are provided with proper materials and equipment to make all light repairs on macadam and unimproved streets.

Study of Relative Desirability of Large and Small Sewer Catch Basins.

The present cost of cleaning sewer catch basins cannot be ascertained from the department's records. Moreover, the cost is shown as a street cleaning expense. A careful study should be made of the relative efficiency of the large capacity catch basins as against that of the basin of small capacity now used, with a view to reducing the cost of cleaning.

Definite Program for Sidewalk Improvement.

There is no uniformity of sidewalk construction, and most of the walks are dirty and in bad repair. A definite program of sidewalk development should be adopted, and be authorized as a concrete detailed problem by the council.

Diversion of Traffic from Street Closed for Repairs.

Criticism is made of the manner in which the department has failed to give the public sufficient information as to alternate routes for traffic to follow when a street is closed for repairs. Consideration for the public is essential to successful administration.

Importance of Elimination of Overhead Wiring.

The overhead wiring throughout the city is unsightly, dangerous and a reflection upon the community, yet immense difficulties must be overcome before overhead wires can be removed. A comprehensive program¹ for dealing with this problem should be prepared by city officials, and then backed by a strong public sentiment if it is to be made effective.

Cost of Team Hire Excessive.

The city is compelled to pay too much for teams that are hired by the day. A careful tabulation of the cost of maintaining the city's own teams is needed in order to determine whether it would not be more economical for the city to own and operate all of its own hauling equipment.

Property Owners Should be Notified When a Street is to be Closed.

Before beginning any work on pavements, or other public work which will seriously affect the use of a street, a notice of the proposed work should be sent to residents of the street to be affected.

The Department of Works Should Care for Park Roads.

There is no difference between the kind of engineering technique or special administrative ability required to construct park roads, and that required to construct and maintain light traffic roads and boulevards throughout the city. The present system means duplication of forces and equipment which could be entirely avoided if roads within parks were placed under the jurisdiction of the department of works.

¹The commissioner states that there has been a definite program for many years.

Sub-Surface Maps and Records.

Many problems of highway maintenance are caused by a city's poor control of sub-structure construction and maintenance. The city should have complete data of sub-surface conditions of the streets, in the form of standard records and sub-surface maps showing the exact arrangement of all underground structures.

Steps to Expedite Performance of Public Work.

The report takes up in considerable detail the various delays in the carrying out of contracts for public work. It shows that the average time consumed in the completion of public works contracts is more than one year. Any procedure which makes such a condition possible is a fundamental barrier to complete efficiency in public works administration. Specific recommendations are made for steps that may be taken to cure these conditions.

Substitution of Unit Cost for Lump Sum Bidding.

The report considers at length the present system of contract bidding, and condemns severely the practice of lump sum bidding. It explains the principle of "line item unit cost" bidding, and recommends that this principle of bidding be adopted.

Contract Procedure in Letting Water Mains.

The present plan of laying water mains is condemned as making it necessary for a bidder to guess what has to be done. Suggestion is made that the department of works should find out if it cannot profitably do all the work of laying its own water mains.

Assessments for Local Improvements.

The whole principle of assessments for local improvements is considered fully, and the strong recommendation is made that the laws relating to such assessments be revised. Specific recommendations are made as to the changes which would overcome the objectionable features of the present law. Special objection is made to charging the cost of any pavement reconstruction against abutting property. Such work, the report suggests, should be financed through debentures chargeable to the city at large.

Need for Civil Service.

Civil service would, by entrance examinations, eliminate unqualified applicants; by promotion examinations and efficiency records would provide a standard for recognition of meritorious service; and, by classification of positions into class, rank and grade, assist materially in the standardization of salaries and wages. By the

adoption of proper rules and regulations, civil service would assist in the establishment of proper departmental discipline and esprit de corp.

CONSTRUCTIVE AND CRITICAL DETAILS

Introductory Statement

As has been pointed out in the general statement, the entire organization, personnel and procedure of the department of works were in process of reorganization when the survey was undertaken. With the organization plan not finally established, it was thought desirable to consider the department as a unit rather than in sections. For that reason the detailed constructive and critical statements following have been grouped under three general heads:

a—Organization and office equipment.

b—Accounting, reporting and business procedure.

c—Special subjects for administrative attention.

ORGANIZATION AND OFFICE EQUIPMENT

The General Problem

The efficiency and economy with which business, whether private or public, is carried on depends on two primary factors:

- 1—Provisions made for protecting the health and developing the expertness and ability of the individual employee.
- 2—Provisions made for the utilization of the personnel and equipment in co-operative effort.

Care for the health and comfort of employees is the first condition to the promotion of individual efficiency. The best team work requires central direction and control, and the establishment of working relations which will enable employees to use equipment to advantage.

Over-crowded Rooms

Among the conditions found which operate against the development of individual efficiency is the over-crowding of rooms. The total volume of air space in the accounting and purchasing section gives a per capita volume of air of only 474 cubic feet, 26 cubic feet under the minimum (500 cubic feet) prescribed by the medical health department for living conditions. In the east room a total net volume of 16,776 cubic feet of air space is available for forty-two employees, making an average of 399 cubic feet per capita. If the air space taken up by desks, filing cabinets and other office furniture were deducted, it would decrease the volume stated by approximately twenty per cent.

Under such conditions the best work is impossible. They are dangerous to the health of the employees, and promote laziness and ineffective effort. A further serious objection to such over-crowding is that it militates against the best utilization of the organization and equipment.

Noisy Office Machinery

In the east room of the accounting and purchasing section, adding to the confusion caused by the cramped quarters, are eleven typewriters, effectually decreasing the efficiency of some thirty odd employees working on detailed ledgers, stores requisitions, permits, etc. For best work it is essential that noisy office machinery, such as typewriters, be segregated in some place where its operation will not interfere with clerks making mathematical calculations.

Centralization as an Essential to Efficient Management

Among the conditions essential to effective team work is the centralization of personnel and equipment to such an extent that it may be directed and utilized to highest advantage. The lack of such centralization, combined with insufficient office space and scattered quarters, has been the cause of waste.

Central Stenographic Division Suggested.

Experience in many city departments and private corporations has proved undoubtedly that the establishment of a central stenographic bureau is a step toward efficient office management. The elimination of unnecessary noise in accounting and administrative offices will provide better working conditions in such offices, while the centralization of stenographic service usually reduces the force and increases the quality of the service.

There are nineteen stenographers now employed in the city hall offices of the department of works. If centralization were adopted, this number could no doubt be materially decreased.

Central Permit Division Needed.

When this survey was made, fourteen clerks were engaged in issuing public works permits, including permits for illuminated signs, street openings, encumbrances, vaults, house sewer connections, and others. Centralization would undoubtedly reduce this force more than one-half and effect a saving of \$6,000 to \$7,000 a year.

But economy in expenditure for this function of the department of works is not the only consideration. To serve public convenience

it is essential that one place be provided for the receiving of applications for various permits, privileges, and the like, issued by the department. Public works permits are now issued in five different places, with as many different supervising officers.

The correctness of the principle of centralized permit control is firmly established by years of experience in many city departments. Much economy in expenditure, and increased convenience for the public would surely result from like centralization in this department.

Centralization of Draughting and Surveying Forces Needed.

Surveying and draughting are practically standard and may be done alike for every kind of public work. There is no fundamental difference between the processes of giving line and grade for roadway work and for the construction of a sewer. At present there are thirty-two draughtsmen and twenty-two surveyors employed by the department of works, scattered from one end of the city hall to the other, on two different floors. Supervision of this force is divided between the heads of five different sections, not one of whom has sufficient time to give such attention to important details as is necessary to produce the best results.

Centralization of the draughting and surveying forces of the department would not only improve the service, but the experience of other cities indicates that it would also decrease the cost of this work. It would make possible better quarters for the draughtsmen, would make better supervision easier, would eliminate waste time, and would assist in creating better inter-bureau co-operation.

Centralization of Inspection Forces Needed.

In the last few years many public works departments have been tending toward the consolidation of inspection forces, thereby increasing the effectiveness and decreasing the cost of inspection work of practically all kinds. There are few instances in the operation of the department of works where one inspector is not as competent to take charge of the work as another. Concrete work on sewers requires neither a different quality of inspection nor different technical training on the part of the inspector than is required for concrete work on pavements. Certainly a gain would be effected by centralized inspection on general construction work.

But the greatest advantage to be gained from centralization of inspection is in the patrolling of streets. A patrol inspector may

report on violation of the water regulations, as well as on the condition of pavements and sidewalks, with no more time or labor.

We would suggest that a public works patrol inspection force be established. It should be the duty of members of this force to report on all conditions or circumstances of public or private property existing in violation of law or which might prove to be dangerous to public welfare, including defective conditions of all kinds of public works, buildings, encumbrances to the highway, violations of water regulations, and all other violations of law or departmental regulations observable from the street.

Central Payroll Division Needed.

At the present time pro-forms of payrolls are made out independently by every section and sub-division of the department of works. By the use of proper time and service records, the entire payroll preparation could be centralized in one division. In such a division, by use of addressing machines and other mechanical office devices specially adapted for such work, the work of preparing payrolls could be greatly facilitated and the cost materially decreased.

Street Cleaning a Proper Function of a Works Department.

Within the past year the street cleaning and garbage removal sections have been separated from the department of works and made into a separate department. Although there are many administrative difficulties in very large cities which at times make advisable the separation of the street cleaning department from the department of works, the recent tendency invariably has been toward amalgamation rather than separation. For a city the size of Toronto, surely excessive administrative difficulties could not have caused the change to be made.

Assignment of Employees

Force Reduction Recommended.

Upon making a survey of the methods in use for purchasing (and controlling after purchase) the various supplies and materials used by the department of works, the first impression is that this sub-division employs entirely too many men to carry on the work. There are, in the main office, sixteen men who give practically all their time to the purchase and control of stores. On the outside, in the various division offices, there are twenty-one storekeepers and clerks. Thirty-seven is far above the average number of employees required for this work. A part of this force is made necessary by a cumbersome procedure, a part of which is in process of correction.

The Use of Foremen as Clerks Criticized.

Another reason for an unnecessarily large number of employees is found in the wasteful manner in which some of them are used. For example, in one of the outside yards, District No. 11, the work of the storekeeper was so light that fifty postings constituted a week's work. Yet in the same office the assistant foreman was kept at clerical work most of the time, and, at the time the survey was being made, he had called in a patrol inspector to help out on such work. All clerical work should be assigned to clerks, and all operating employees, such as foremen and patrol inspectors, should be kept in the field. The use of a foreman as a clerk means both poor clerical service and neglected operating service. There is no reason why the storekeepers in the smaller yards should not do all the clerical work of the office, including the making out of daily reports, the recapitulation of work done, and the like.

ACCOUNTING, REPORTING AND BUSINESS PROCEDURE

Statement of Present Accomplishments and the Problem for Future Work

The reorganization which has been going on in the accounting and purchasing sections of the department during the past year makes it impossible to comment upon existing conditions as final conditions. The following criticisms are primarily upon method and principle, rather than upon detailed procedure. Certain criticisms of procedure have been included, but only where it is hoped that future reorganization will cure the existing inefficiencies.

Budget and Appropriation Control

Form of Budget Criticized.

Perhaps the most fundamentally important element of accounting as it affects the administration of the department is that of appropriation control. This hinges, to some extent, upon the form of budget in use. The present form used by the department of works, although superior to many lump-sum, unsegregated budgets, fails in several respects. There is no standard classification of accounts which would provide a basis for comparison of annual expenditures for like subjects; there is no functionalization which would provide a means for determining accurately overhead and direct functional costs, and there is a tendency to combine in one appropriation account several different kinds of funds, without proper segregation or individual control.

Appropriation Ledger Ineffective.

It is possible from the present form of appropriation ledger and liability journal to obtain a statement of unexpended and unencumbered balances. However, the present form is not one which presents in one place a complete picture of the status of an appropriation. It is not easy to audit, and is cumbersome and expensive to operate. Two men are now engaged upon this work which one man will unquestionably be able to do under such revised procedure as has already been suggested in detail to the department.

Appropriations Exceeded.

Notwithstanding the fact that it is illegal for an administrator to incur expense without specific advance authority from the appropriating bodies, the statement of the department shows that a number of detailed appropriations have been exceeded. It is almost impossible to tell by how much certain of these appropriations have been exceeded, for credits of work done for outside parties are shown directly against appropriations. On account of the fact that the "P. & D." (accounts receivable) ledger in the department of works is not in agreement with the general ledger of the treasurer, and on account of the fact that credits from the "P. & D." ledger are shown directly against the roadways account, which is now shown as overdrawn, it is impossible to tell the status of this account. During the course of the survey it developed that the "P. & D." ledger had not been balanced since 1910, and from that time on it had certainly not been in agreement with the general ledger of the treasurer's office. The books were still out of agreement when the survey of the department was completed.

General Changes Suggested.

We would suggest:

- 1—That the present form of appropriation ledger and liability journal be revised and placed upon a more modern basis.
- 2—That the department discontinue the practice of crediting revenue receivable directly against tax levy appropriations.
- 3—That rotary funds be established for various plant accounts and special work.
- 4—That the appropriating body and the auditor require the department to keep within its detailed appropriations.
- 5—That a reconciliation of the auditor's and department's books be made and certified to once each month.

Contract Accounting

Duplication of Work.

The present system of keeping contract register, contract cards, local improvement cards, estimate cards, etc., includes much duplication of work which could be eliminated through the preparation of a proper contract ledger and contract card. Four to five operations which could be given up would mean a saving in force of from two to four men.

The form of final estimate now in use for local improvement work almost exactly duplicates the information shown on the voucher and invoices for the same work. The elimination of this duplication would provide additional time for the preparation of comprehensive administration summaries on contract work.

Record of Drawback Payments Inadequate.

The form of card and book record now used for controlling contracts physically completed but financially in progress, due to the withholding of a "drawback", is also subject to criticism. The original form used—entry in a bound book—proved to be somewhat cumbersome. For that reason, in the past month (October), cards have replaced the bound book. We would suggest that cards are too easily lost or mislaid to be really efficient as a record, which must remain current for a period of from one to ten years. If, however, a book were provided for each year, it would be quite possible to enter very easily all the information necessary, and to obtain a "tickler" upon the expiration of all guarantees.

Facts Hard to Obtain.

It was extremely difficult to obtain complete contract information in regard to either physical or financial conditions from any records of the department. This situation was partly due to the lack of a standard posting and filing classification. In the roadway section, contracts were filed generally by location; the contract register in the accounting section was filed by name of contractor; the contract cards in the same division were filed by location and kinds of work, all cross-indexed more or less adequately, but not one of the records was coincident with any other in posting.

Revision of Procedure Suggested.

In this connection we would suggest that, for all financial operations applying to contracts, a contract number, with an indicative letter, be used as a basis for posting and physical filing of contracts and expenditure documents applying thereto; and that, for the filing of physical information relating to contracts, location only be used.

Cost and Expense Records

Lack of Cost Records Criticized.

The most conspicuous failure of the present accounting system is the lack of proper unit cost records. There are no current unit cost records, no job costs and no expense summaries which would show the financial conditions of current operations. It is, of course, impossible to effect proper control over field operations or any other kind of departmental activities without the preparation of records showing the current costs of such work.

With the present form of field reports, time sheets and labor reports, the preparation of unit costs would be laborious and expensive. But a revision of these reports and the adoption of basic filing principles would eliminate the difficulty. In various sections of this report revised forms and procedure for their use have been recommended—all of which would greatly facilitate the preparation of cost records. In any accounting installation the principle must be kept continually in mind that each form is an integral part of the whole accounting scheme. Efficient accounting can never be obtained if any forms and records are designed as independent and distinct from all others. As has already been pointed out regarding the proposed form of appropriation ledger, there has been too little collocation and co-ordination of form and procedure in this department.

Kinds of Cost Records Needed.

It is not the purpose of this report to set out at great length the detail of cost accounting or the various unit costs which should be obtained. While the general principles of cost accounting are standard wherever costs are used, the degree of detail required depends entirely on the administrative and operative conditions. There are, however, a number of costs the need for which is quite apparent.

- 1—If proper records had been prepared showing the cost of each square yard of pavement repairs laid, the council, board of control, the works committee or anyone else could have determined the relative efficiency of contract work versus city labor.
- 2—If the above costs had been grouped by the foreman who supervised the work, the commissioner would have been able to determine the relative efficiency of his foremen.
- 3—If the cost of repairing the track allowance pavements had been reported currently and filed according to blocks and intersections, a review of the expense on Queen, or King, or Yonge Streets

would have convinced the most non-technical citizen that something was radically wrong in the methods used—and the waste of a million and a half dollars of city money would not have occurred.

Expenditure Analysis Criticized.

Four men are now engaged on a detailed analysis of expenditures. From the results obtained it is apparent that this expenditure for clerk hire is practically a waste of money. This statement is made for two reasons. First, because a revision of the budget upon functional lines would provide a better basis for obtaining general expenses, and, second, because accurate and intelligent expense records are not those arbitrarily made up by a detailed analysis of expenditures, but rather by a summary of job costs. Accurate job costs should be developed which, through comprehensive summaries, would provide a basis for a current statement of expense. Standard sub-accounts for various operations of the department should also be established, instead of requiring each section chief to submit a pro-form of the kind of detail he would like to have kept.

Summary of Sewer Cost Records Recommended.

The sewer section has instituted a procedure which requires the reporting in detail of various items of cost on sewer construction work. This information in itself is of great value, but proper use can never be made of this kind of cost data unless a comprehensive summary be prepared for the administrative officers.

Accounts Receivable

Accounts Too High and Poorly Controlled.

In addition to the deficiencies already noted regarding the "P. & D." ledger, it is of interest to know that on January 1, 1912, \$83,000 debit balance, or money due the city, was shown on this ledger. This is approximately the running debit balance of the accounts receivable, and is entirely too great a figure for this ledger to show. If a large balance must be carried, it is only right that the city obtain interest on the money due.

In order to eliminate from the routine procedure of the department certain difficulties which invariably arise through the control of accounts receivable, we would suggest that an individual rotary fund be appropriated for this purpose, and that all expenditures for outside work be charged directly to the rotary fund, and all credits received on account of payments be shown directly against the rotary fund.

Financial Stationery

Better Control Needed for Field Documents.

In addition to the receipt for money paid for a permit to do certain kinds of work, it is now the practice to give the permittee a placard to be posted on the work.

The purpose of this placard is to provide a public notice that authorization to do the work has been granted, principally for the information of inspectors, policemen, or other officials who might question the right of the property owner to perform the work.

Although the auditor has fair control over application and receipt forms, he has no record of the number of these placards in the hands of the permit clerks at a particular time. It would, therefore, be quite possible for a clerk to issue any number of permit placards without any one being able to determine the number issued.

Need for Control of Financial Stationery.

Although the city auditor has a partial control over most of the documents issued by the permit clerks, he has not obtained sufficient control over certain important financial and operating instruments. The form of receipt issued for cash deposits on various kinds of permits is not one which provides an accurate basis of audit for money received. It consists merely of a carbon duplicating process, which does not provide a means for determining accurately the amount of money received. To replace this, we would suggest a form of graduating stub, combined permit and receipt, which by tearing will separate the original from the duplicate, indicate the amount, and provide a proper basis for audit on money received.

Permit Accounting

Standardization of Present Forms Needed.

Considering the fact that it is the printing, form, color, and general "set-up" of the permit which makes it an official document in the field, rather than the signature of the commissioner of public works or any other official which may appear upon it, we would suggest that all permits issued by the department of works be made of standard size and uniform arrangement and appearance. To-day each permit differs in size, form and arrangement from every other issued by the department. A decided saving in work and a reduction of clerical force could undoubtedly be effected through the centralization of all permit operations.

Forms and Methods in Street Opening Permits.

Six clerks are required to issue, and control after issuance, permits for cutting into street pavements. There is much duplication of work in this division. A revision in the kind of documents would effect a great saving in force. At present, a quadruple series of numbers is used, where one would be sufficient, and an unnecessary duplication of notices, which could undoubtedly be materially reduced.

No preliminary deposits are required from applicants for permits to cut the street before such permits are issued. We believe this practice should be instituted. Much better control over the manner of backfill, the size of the opening, and the character of repair made, can be obtained if the department has on deposit sufficient money to cover the cost of any contingencies which may arise. It is also quite proper that every permittee be charged for the cost of supervision, inspection and the issuing of the permit. These amounts should be added to the actual cost of the work, and the total complete cost should be deducted from the deposit of the permittee. This plan would also eliminate the largest item from the accounts receivable ledger.

Stores Accounting

Recent Improvements Effected.

Just prior to the beginning of the current fiscal year, a detailed inventory of stock on hand was taken by the accounting and purchasing section in order to provide a basis for proper control of supplies, material and equipment used by the department of works. The non-agreement of this physical inventory with the stores records showed clearly the need for immediate overhauling of these accounts. During the past year strenuous efforts have been made by the accounting staff to put the stores system on a proper basis. This work is still going on. It is imperfect in many details, and certainly incomplete, but is a great improvement over the former methods.

New Stores Ledgers and Periodic Audit Needed.

The present form of general stores ledger is cumbersome and expensive to handle, and is usually so far behind in postings that no current control of stores can be obtained from it. We would suggest that the central office control of stores be made upon a cash or valuation basis, and that the control of stock on hand in the various yards be obtained through periodic audit.

Maximum and Minimum Stock.

The present form of stores ledger does not provide space for entry of maximum and minimum stock to be kept on hand in each district yard. We would suggest that a careful examination be made to determine the needs of the department for various kinds of stores, and that each storekeeper be provided with a maximum and minimum stock list.

Administrative Records and Reports**Time and Service Records Should be Revised.**

During the survey of the department of works, not one adequate and sufficient time and service record of an employee was found. The nearest approach to the kind of time sheet necessary for the proper control of employees, and necessary as a basis for the development of unit costs, was a combined weekly and daily time report used by the field parties of the railways and bridges section, but no service or efficiency records were to be found even in this section.

Time sheets are as essential for the clerks in the division of accounting and purchasing as they are for the field parties of the railways and bridges division. In fact, there is no division in the department where the keeping of detailed time and service records by the employees would not aid greatly in proper administration.

We would suggest that every salaried employee in the department of works be required to keep an individual time sheet, showing thereon time on duty and hours of service, with short particulars of the work upon which he had been engaged for each day of service rendered, and that such time sheets be used as a basis for assembling payrolls and payroll data. We would further suggest that every foreman of a labor gang be provided with a form of time report, on which he should make a daily report of the hours and the nature of labor performed by each member of his gang.

Revision of Report Forms Needed.

The survey of the main office of the water works maintenance section developed the fact that from two to three times the necessary work was being done, due simply to inefficient reports and reporting methods. Foremen transcribe the information shown on the original application for service, where a duplicate carbon copy would have answered the purpose much better. A second transcription of the same information is carried in a form of journal or day book, where a file of carbon copies would answer every requirement.

We would suggest that applications for service, complaint notices, work orders, etc., be drawn in a convenient field form size, and that duplicate copies of each kind of notification to this section be provided; that the reports of foremen and other subordinate officers of this section be made directly on the back of the original report; that the duplicate be maintained as the permanent record in the section office; and that the original, containing a transcript of the cost, be transmitted back to the main office for permanent record there.

Field Report Forms in Need of Revision.

This situation in the maintenance and distribution section in the water works is similar to that found in practically every district office of the roadway section. The foremen and other operating employees of the department were attempting to secure for the administrative officials detailed costs and analyses of work done, but no one had provided them with proper report forms. The use of foremen as clerks or as form designers, means poor work in the field and poorer forms in the office. We would suggest that one of the accounting staff of the department be assigned immediately to revise all forms and reports now being used by the various foremen and district officers.

Administrative Summary of Water Works Pumping.

An attempt has been made in this section also to prepare an administrative summary of the work done. This summary, a fairly complete statement of the operations of the section, has been in use only about three weeks, and has naturally not received a thorough trial. The principle is excellent and should be encouraged.

Sand suspended in water has a very serious effect upon the valves, cylinders, and other parts of the pumps. Under any circumstances, however, the current reporting of pump efficiency records is of great importance in efforts to obtain low operating costs. These figures are quite as essential in the administration of pumping stations as are total figures of amount of water pumped.

Annual Report Criticized.

The last annual report of the department available for criticism during this survey was that of 1911, prepared under the supervision of Charles H. Rust. The 1912 report had been prepared in preliminary form and was available for study as a preliminary report only.

It is only through comprehensive and intelligent reports that the great body of citizens interested in municipal affairs can test the efficiency of their city government. But it is difficult to understand how this test is to be applied in Toronto, when the only report of an operating department as important as public works is delayed for nearly a year before publication. Facts given in an annual report of that nature are of no value for a current audit of the operations of the department. They are useful for historical purposes and nothing else.

In addition to the ineffectiveness of the annual report, because of its delayed publication, it is to be criticized as not being in proper form. In the first place there is entirely too much of it. The 1911 report contains 350 folio pages, photographs, diagrams, charts, tables, etc.—the size of this book may be more readily understood by the statement that it cost \$1.68 a copy to print six hundred copies. There is too much general information and too much repeated detail. The arrangement of the charts and tables is not conducive to an easy understanding of what has been done; what it has cost to do it, or what ultimate result in economy of expenditure or efficiency of operation has been attained. It is also a mistake to include in one bound volume the individual reports of the many sub-functional activities of the department of works. For economy in distribution of the report, it is impracticable to answer requests for information concerning the roadway section, for instance, by sending out a bound volume containing 300 additional pages on sewers, water-works, railways and marine operations.

Although some attention has been given in the preparation of the annual report to assembling tables showing work units and approximate expenditures for certain operations during the past ten, fifteen or twenty years, these figures have not been properly recapitulated by functions. The lack of adequate unit cost data throughout the department is clearly evidenced by the insufficiency of such data in the annual report.

The easiest and best method for testing the efficiency of any machine is by comparative statistics, accurate in detail and currently available for inspection. Every annual report should furnish such statistics, and every city department should be required to prepare and publish, within a month after the close of each fiscal year, a statement of its financial operations for that year.

Correspondence Control and Filing Inelastic

The department is to be congratulated on the work done to effect an adequate filing system and control over correspondence. The only criticism is that the system is of a kind that cannot be amplified to any great extent. For that reason the present practice necessitates a secondary control in the various section offices, which could be avoided through slight changes in the head office procedure.

General Ledger Control Not Established

The final development of the accounting procedure in the department of works should be the establishment of a general ledger control of subsidiary accounts and records. Owing to the incomplete status of the accounting procedure, the installation of general ledger control is not possible at the present time, but to avoid changes in subsidiary ledgers and supporting procedure when the installation of the general ledger is finally effected, this principle should be kept in mind during all of the accounting installation work.

An example of how lack of foresight in the design of subsidiary ledgers may cause unnecessary work, may be found in the proposed appropriation ledger. If the appropriation ledger is to be used only for determining unencumbered and unexpended balances, and is not intended for an integral part of a general ledger accounting system, the proposed method of lumping contract, open market order, and miscellaneous payments would be quite sufficient. But if the appropriation ledger is to become a supporting document for general ledger control, as it certainly ought to be, it will be necessary to analyze the liabilities, liquidations and payments, according to whether they were incurred on contracts, open market orders, or miscellaneous payments upon which no reserve had been set up.

The reason for this is quite apparent when it is considered that, on contract liabilities and payments, the detail is obtained through the medium of a contract ledger; on open market orders, through a vendors' ledger; on miscellaneous payments and payrolls, directly from expenditure documents. Many future changes in records and procedure may be avoided if the general ledger controlling principle be kept in mind during the preliminary work.

Plant and Overhead Charges

Practically all of the charges made on account of work done in various plants of the department of works carry an overhead for the general plant burden. This is a commendable practice, but it is

impossible to understand where the particular advantage accrues from this practice to-day, when the plant charges are not set aside as a depreciation fund, and when they are not allocated strictly against the bonds issued to fund the capital investment on the plant. The question of the correctness of the depreciation fund principle for city plants may be somewhat beside the point, but the fact remains that if, for example, the asphalt plant has been used primarily for local improvement work, then the local assessment funds should bear the burden of the sinking fund and interest charges on the capital investment for such plant. It would be impossible to determine accurately the status of these charges without considerable detailed analysis, but a cursory investigation would seem to show that the burden charges received for this particular function are proportionately much larger than the depreciation charge. A proper accounting system for the determination of cost and expense would set aside clearly the various items of expense, against which could be allocated revenue receivable or received in respect to the services rendered.

Overhead Charges on Improvement Works

The entire question of overhead charges for administration, like the overhead charges for the plant burden, is considerably confused in the present accounting methods. The principle followed is to add an arbitrary five per cent. on all work as the cost of administration, engineering, accounting and general office expense.

But the overhead charges on maintenance are considerably higher than the overhead charges on construction, and doubtless, a good part of the expense now considered general overhead is more properly a direct charge against various work, at least a subsidiary overhead. For example, the time of practically all the draughtsmen and surveyors can be charged directly against jobs. In addition, practically forty per cent. of the accounting and purchasing expense should be charged against stores. This stores overhead, when distributed to work, will place considerably more overhead expense upon work done by the department of works than upon work done under contract.

How to Avoid Future Mistakes

It is not the purpose of this report to criticize severely a lack of the niceties of detail in accounting procedure which, although essential to good accounting, are not to be expected during a transition period. The purpose of these criticisms is rather to point out inequalities and unscientific principles which in future work may be avoided.

Delays in Payment of Bills

Just what it costs the city to continue the present practice of having all public works bills passed by both the works committee and the council, would be hard to estimate. It is true, however, that tradesmen and contractors dealing with the city must of necessity add an overhead charge to their selling prices in order to protect themselves from delays in payment. On the other hand, many vendors offer a bonus in the way of a discount for cash payments within a short period after delivery.

There is no reason whatever why the city of Toronto should not obtain cash discounts and lowest prices on all supplies, materials and services purchased. This can never be possible under the present system. If, however, the city auditor were delegated authority more in the nature of a controllership, and provided with an auditing inspection force, the signature of the head of the department and the countersignature of the auditor of the city should be sufficient protection against misuse of funds and sufficient evidence for immediate payment of any claim.

SPECIAL SUBJECTS FOR ADMINISTRATIVE ATTENTION

Departmental Reference Library.

The most conspicuous division of the head office is the reference library. By weekly bulletins, every employee of the department of works has presented to him, in concise abstract form, a statement of interesting and important articles appearing in various technical magazines, for which the department subscribes. This is an excellent practice, and one which, if maintained, will do much to promote the use of up-to-date and efficient administrative and operative methods. However, since there is a municipal reference library already established in the city hall, which should do all the work now done by the departmental library, we would suggest that the two libraries be combined. All information contained in the departmental library bulletin could then be made available for all departments in city hall, and unnecessary duplication of work would be eliminated.

New Plan of Light Street Repairs Should be Tried

Light repairs to unimproved roads, cleaning of crossings, gutters and the like are carried on by section-men operating from the various district offices.

This practice is costly and more or less inefficient, and a change is recommended. Many public works departments have substituted the so-called "German plan" for making light repairs, by which the street cleaning forces engaged in cleaning macadam and unimproved streets and roadways are provided with proper materials and equipment to make all the necessary light repairs. There seems to be no reason why this system could not be operated effectively in Toronto. The results obtained from it in other cities would well warrant a thorough trial.

Condition of Sewer Catch Basins as Related to Cost of Cleaning

The only present operating practice of the department of works recognizing the need for intimate relation between the street cleaning department and the various sections of the works department is that of sewer catch-basin cleaning. This work is now carried on by the street cleaning forces, and shows as a charge against street cleaning appropriations. It is now generally recognized that it is not proper to charge the cleaning of catch-basins as a street cleaning cost, notwithstanding the fact that the wash from the streets is responsible for clogging the catch-basins.

Just what it costs to clean sewer catch-basins could not be ascertained from any records in the department. However, such a small capacity of sewer catch-basins as is found in Toronto (about six cubic feet) has in other cities caused a comparatively high yardage and catch-basin cost for such cleaning.

The most efficient sewer catch-basin cleaning division thus far surveyed in any city is one which makes it a practice never to clean a catch-basin unless there is approximately a cubic yard of material to be removed—an amount nearly five times as great as the total capacity of the present sewer catch-basin in use in Toronto.

We would suggest that a careful study be made of the relative efficiency of the low, small capacity catch-basin, as against that of a larger capacity, with especial reference to the cost of cleaning.

Sidewalk Program Needed

An investigation of the sidewalk conditions revealed some rather unique construction methods. There are a number of sharp cornered curbs throughout the city, the disadvantages of which are obvious. There are also a number of "scalloped" curbs, where the wings leading to a side street have been made ten to fifteen feet wider for a

like distance and then narrowed to the ultimate width of the street. Although it is impossible to see any particular advantage or any decided disadvantage, except appearance, in the odd scalloped corner construction, it would no doubt increase the efficiency of the streets if the square cornered curbs be cut back on such a radius as would make a curve approximately equal to that followed by vehicles in making the average turn.

Need for a Study of Sewage Disposal

It is obviously a severe reflection upon the designing abilities of previous department of works officials to find that the present main drainage disposal plant is wholly inadequate for the needs of the sections of the city which drain through it. The present sewage beds, costing originally approximately \$150,000, are to-day very ineffective in their work. If they are ever placed on an efficient basis, they will have to be supported by more or less expensive sludge digesters. Although, when the survey of the main drainage plant was made, the weather was quite cold, there was a distinct and very unpleasant odor perceptible. How bad this odor might be during the warm weather could only be conjectured. It must be very disagreeable and detrimental to realty values of the section. It is to be hoped that sufficient time will be spent in the study of the proposed Imhoff tank installation to avoid a repetition of the present failure in the new plant.

Need for Signs in the Vicinity of Improvements

More attention to the matter of informing the public when certain streets are to be closed on account of sewer, pavement or private corporation construction work, would eliminate much of the inconvenience to the travelling public. Moreover, when a main artery of travel is closed on account of improvement work, care should be taken to direct the traffic to an alternate passable route. Inconveniences attending street work often cause much criticism of the department, both from an engineering and an administrative standpoint.

Failure to Notify Property Owners

Co-operation between the city department and citizens who are to be affected by any kind of street improvement work can be increased by providing the citizens with sufficient information on which to base an intelligent report or send a request to the department of works.

We would suggest that, before beginning any work on pavements or other public work which will seriously affect the use of a street, a notice of the proposed work be sent to residents of the street to be affected. Such a notice should contain sufficient particulars of the contract and specifications to inform the citizens of the vicinity what is to be expected from the contractor, and how they may help—either in the use of the street or in an informal inspection of the work—to carry out the improvement.

Department of Works Should Supervise Park Roads

The construction and maintenance of roads within parks should be placed under the jurisdiction of the department of works. There is no difference between the kind of engineering technique or special administrative ability required to construct park roads and that required to construct and maintain light traffic roads and boulevards throughout the city. It is obvious that, if the park roads are maintained properly by the department of parks, there is considerable duplication of force and equipment. Moreover, when the city has men on its payroll selected particularly for their ability in road construction and maintenance, it is somewhat remarkable to find that the services of such men are not made use of for supervising all of the roads and pavements in the city.

Sub-surface Maps Needed

It has often been stated that highway maintenance problems are due largely to poor control of substructure construction and maintenance. Some authorities have gone so far as to state that in the borough of Manhattan, in the city of New York, ninety per cent. of the maintenance is caused directly by poorly located substructures and poorly backfilled cuts made to repair or extend existing underground structures. In any event, it is a serious problem, and one which deserves detailed and continuous attention in Toronto, as in every other large city.

The preparation of comprehensive recapitulation maps, showing in summary form the substructure condition of the heavy traffic streets, would greatly facilitate proper control over substructures. There are no records in the department of works to-day which show, in comprehensive summary form, the sub-surface conditions of the streets. There are certain maps and plans of sewers and private corporation mains, conduits, and the like, but their physical condition makes efficient use of the information contained practically impos-

sible. What is needed for each street, is a picture of sub-surface conditions, rather than a great number of individual detailed plans drawn with different conventional signs to different scales.

Overhead Wires Unsightly and Dangerous

A detailed survey of existing conditions is certainly not necessary to bring to the attention of citizens of Toronto the fact that the overhead wiring throughout the city is unsightly, dangerous, and a distinct reflection upon the community. Yet few citizens realize the difficulties which must be overcome before overhead wires can be removed.

At least two of the corporations now using the streets for overhead wiring are operating under franchises granted by the Dominion and Provincial governments. These cases raise technical legal questions as to the jurisdiction of the city authorities. The department officials realize fully that the present conditions must be changed, and have entered into certain preliminary negotiations with a view to improving them. Numerous physical difficulties make it readily apparent that the removal of overhead wires by the provision of public or private substructures is not the work of one year, or two or five, and the legal questions referred to will add to the delay.

The situation offers a serious problem, and one which deserves the careful attention of citizens of Toronto. A broad and comprehensive program for dealing with this problem should be prepared by city officials, but to make such a program effective the city will need the backing of a strong public sentiment and sincere citizen co-operation.

Team Hire Expensive

Six dollars per day for the hire of a team, cart, and driver is the prevailing rate of wage recognized by the city for such service. Every section of the department of works, with the exception of the maintenance division of the waterworks, pays this rate for the hire of teams with drivers. Six dollars per day is considerably too high a rate of pay when compared with wages for other service. Beyond question, this service could be obtained more cheaply, even if the city were forced to provide its own equipment. Although the city provides the carts used at the asphalt plant, the same rate, six dollars per day, is there paid for the use of a team and driver only. A tabulation of cost of operating city-owned horses and carts should be prepared, in order to determine whether it is not more economical for

the city to maintain its own equipment for all hauling. Another comparison of cost could be obtained if the department were to advertise for bids and contract for a part of this service.

Street Signs Inadequate

It usually remains for an outsider to call attention to the inadequacy of street signs. So it is in this case. Toronto's street signs are too few in number, poorly placed, and inadequate in form and size to serve as effective guides for a person not familiar with the various streets.

Although overhead wiring, and poles along a street, are never desirable, when such poles do exist they can be used to good advantage as street sign standards. In any event, the policy of placing street signs on the sides of buildings should be discontinued, and more care should be taken to ensure that signs already placed are legible. With cracked enamel and other disfiguration, many of the signs now in use are practically worthless.

Inequalities in Water Rates

It is quite evident, from an examination of the revenue and expense statements of the waterworks sections, that there is need for a revision of water rates. The 1911 report of the department contains a statement that the average "schedule" on the tariff basis is four and one-third cents per thousand gallons; by meter, ten cents per thousand gallons. In 1912 the average cost of water was approximately six cents per thousand gallons, whereas the ordinary meter rate, for consumption up to one million gallons, is ten cents per thousand gallons, and, for all amounts over one million gallons, seven and one-half cents per thousand gallons. The inequalities are too apparent to need comment. A readjustment of the water rates to provide a more equitable distribution of the cost between the meter and flat rate services should be sought.

Need for More Water Meters

It is to be hoped that, when the sand has been eliminated from the distribution system, immediate steps will be taken to meter the entire city. At present, only about four per cent. of the services are metered. Any increase in the number of metered services under present conditions would certainly not be advisable, for it is extremely difficult to keep what meters there are in active service, owing to the bad effect of sand. According to the statement of the

department officials, a number of meters have been found which failed to register from sixty to seventy per cent. of the water which passed through them, because of the clogging and wearing away of parts.

Criticism of Charging Plan for Water Connection

When an application for water service is received, an order is issued immediately to the maintenance and distribution section of the waterworks, notifying it to attach a house service to the main at a certain location. If the tap on the main is to be less than one inch, no charge is made for the work done. But if the tap exceeds one inch, charges at an arbitrary rate are made against the property connected.

An analysis of a number of house service accounts shows that the average expenditures for this service—including labor, material and overhead expense—is approximately \$30. To this must be added the cost of restoring the pavement, which may be averaged at about \$10 per opening. Thus, an expenditure of approximately \$40 is necessary to make an average house service connection to a water main. If the entire revenue to be obtained from such service were to be applied against this particular cost, it would take several years to wipe out the initial charge. Moreover, considering the fact that it costs 1.35 cents per thousand gallons to pump the water and to maintain the mains, and that a sinking fund charge must be made of two to three cents per thousand gallons, it is clear that service connections of less than three-quarters of an inch must pay revenue to the city for many years before their original cost is covered.

We would suggest that, as in the case of house service connections on sewers, the applicant for water service be required to pay the actual cost of making the connection, with a pro rata deduction or addition to compensate for the location of a main on one side of the street. It is not fair to the present users of water to require them to bear the cost of this work for ten to fifteen years, until the revenue derived from the new service will wipe out the original charge.

Current Reports on Conditions

To obtain the best administration of public works problems, it is first necessary to have a very clear-cut statement of the current conditions of all public works throughout the city. Much of the patrol reporting of public works defects can be done by persons wholly

unfamiliar with the technical requirements for eliminating such defects. There is no reason why citizens, representatives of other departments, and the police, cannot be of great assistance to the department of works, in ascertaining the actual condition of the streets, sewers, and sidewalks.

Special clerks are now assigned in the various sections of the department to care for complaints. The word "complaint" is an unhappy expression for the evidence of citizen co-operation with a city department, but no matter what expression is used, a decrease in the number of complaints received by any city department is in itself certainly not indicative of increased efficiency. On the contrary, the more complaints received, the more information is available for the department officials.

Present Report Forms and Their Use Criticized.

The two great inspection problems of an operating department are, first, to determine the work necessary to be done, and second, to ensure that the work ordered is being carried out properly. The first of these problems has not been adequately cared for in the department of works. Excepting some incidental reporting on encumbrances and signs, by the inspectors of one of the permit divisions, practically the only patrol inspection of any real value in that of the highway districts. But much of the advantage which could be derived from the highway inspection is lost on account of the manner of reporting, and the kind of report forms used by the highway patrolmen. These forms have not been prepared in a way to facilitate easy recapitulation or filing.

Several patrolmen's reports were analyzed carefully, and it was found that from seven to twenty-one different locations were reported on one blank. If these reports are to be filed by location, which is the fundamental filing basis for any department of works, it is obvious that each report of a different location will have to be transcribed in the office. For various reasons, one of which is probably the high cost of such work, these reports are not analyzed or filed properly.

Suggested Procedure.

To overcome these deficiencies, we would suggest:

- 1—That a block and intersection file be prepared, showing by guide cards every street block in the city of Toronto.
- 2—That all field reports be drawn in standard form and size.

- 3—That field reports be made upon the block and intersection basis, and that reports on not more than one block be included on one form.
- 4—That the block and intersection file be divided to show current and completed work, and work necessary to be done.
- 5—That a summary of outstanding work necessary be made from the information contained in this file, and presented to the proper administrative officials at definite intervals.

Facilities for Citizen Help by "Complaints"

We would further suggest that a form of postal card report book be provided by the department of works and distributed to all police officers, to civic organizations, and to citizens actively interested in good government; that these postal card reports be self-addressed to the department of works, and provide space for entering, with the least trouble, the location and character of the defect noticed. This system has recently been adopted successfully as an aid to the administration of public works in many of the larger cities of the United States.

Delay in Issuance of Sub-Structure Permits

There are many things to show that the machinery of general city government is cumbersome and largely lacking in intelligent co-ordination. A typical example of the involved procedure necessitated by such governmental machinery is that required to obtain permits for substructure work by a public service company. The usual course is for an application, accompanied by a blue print of proposed work, to be received from the company. This is forwarded with a letter to the waterworks officials, then to the electrical officials, and, if it is found that the proposed location of the substructure will not interfere with the water mains or electrical conduits the application and blue print are then sent to the committee on works, and from the committee on works to the board of control, and from the board of control to the council. The minimum elapsed time, according to the statement of the permit clerk, is six weeks.

There is no reason why the works committee, the board of control, or the council, should pass plans and applications for substructures about which they have no individual knowledge of detail. The only general administrative supervision necessary is the determination of whether the proposed substructures are within the franchise rights, and this should be determined by the city solicitor.

Pavement Protection and Builders' Permits Needed

Permits for the storing of building material on the street are issued directly to builders and contractors, without sufficient precautionary measures being taken for protection of the pavement. A current inspection of all street spaces occupied by building materials should be made by the patrol inspectors, and a final inspection made when the material has been removed. In order to obtain the best control over this use of the streets, it would be advisable to obtain a preliminary deposit from every builder authorized to use the streets for the storage of building material. In case of damage to the pavement, this deposit could be used immediately for repairs. This practice would also help in reducing the number of accounts receivable in the "P. & D". ledger.

Revenue from Builder Permits.

Whenever the right to use a public work is granted to any individual, the city should obtain a revenue at least sufficient to cover the cost of inspection, supervision, and issuance of the permit. This principle should be applied to the permits issued for storing building material on the street, and whenever such privilege is granted the permittee should be charged a proportional amount, depending upon the space occupied and the length of time the street is used.

Contract Procedure

In attempting to test the efficiency of the general government machinery as it effects the inauguration and completing of public works, an analysis was made of approximately two hundred contracts.

The ascertained facts prove beyond question that the present procedure is cumbersome, that the legal steps which must be taken by the works committee, the court of revision, the assessment department, the board of control, and the city solicitor, are so involved that it is next to impossible to start and finish any work within the year. This situation has seriously affected the attitude of officials of the department of works toward the controlling officers and the governing law. The bare statement should be qualified, since it seems certain that such violations are due, in part at least, to attempts by public works officials to facilitate the completion of local improvement work.

Inaccurate Estimates of Cost.

Another effect of the impossible red tape which is forced upon the department of works may be seen in a disregard for accuracy in

statistical information presented to the various general administrative bodies, upon which they are asked to carry out their legal functions. This is brought out clearly by the table of comparative statistics, showing the relation between the engineer's estimate, the amount bid, and the actual cost of the work.

An analysis of twenty-five contracts¹ in the roadway section developed the following information:

Excess of estimate over actual cost	13 per cent.
Excess of estimate over bids	26 per cent.
Excess of costs over bids	16 per cent.
Variation of costs from estimates	15 per cent.

Before the recent passage of the present local improvement law, and while the department was operating under a law which limited the ultimate assessable cost to an amount not more than ten per cent. in excess of the estimate, there may have been some excuse for liberal preliminary estimates. To-day, however, with this limitation removed, there is no excuse for twenty-six per cent. inaccuracy in preliminary estimates, and this condition is a serious obstacle in the way of the immediate development of line item unit cost bids to take the place of the present lump-sum practice. The disadvantage of the lump-sum bid on contract work will be taken up in greater detail later in this report.

An analysis of the entire file of cost sheets in this section developed the fact that, on both sidewalk and roadway local improvement work carried on by the commissioner of works with city labor, a large discrepancy was found.

Sidewalks.

Total estimate	\$13,035
Total bids (tenders)	6,208
Excess of estimate over bids	6,827
Over 100 per cent. difference.	

Pavements.

Total estimate	\$131,216
Total bids	98,813
Excess of estimate over bids	32,403
Over 35 per cent. difference.	

¹The Commissioner states that an analysis of 333 local improvement works reported on during 1913 and the first month of 1914 shows that the average excess of estimate over cost was 8.1. Greater differences were almost entirely in case of day labor and grading, where the value of free materials was included in the estimate.

Analysis of Elapsed Time Shows Excessive Delays.¹

An analysis was made of 100 roadway contracts let to private contractors, and seventy-five similar contracts undertaken by city labor. The private contracts amount to \$573,043, and were completed during 1913. Both private and public contracts consumed too much time, the average elapsed time, from the date of the engineer's report to the council until the work was certified as completed, being as follows:

Contract works	13 months
City work	12 months

It must be understood that this elapsed time does not include the months very often taken up in incidental discussion, preparation of estimates, making of surveys, etc., prior to the submission of the engineer's report to the council. If this time were to be added to the average life of the contracts shown above, the elapsed time would be nearer eighteen months than twelve.

Other Irregularities in Procedure.

Any procedure which makes it impossible, on the average, to take a simple public works contract of average value less than \$6,000 from inception to completion within a year, is a fundamental barrier to complete efficiency in public works administration. The secondary reactions following this kind of action are only to be expected.

Twelve per cent. of the contracts analyzed were undertaken before the final execution and approval of the contract proper.

Sixty-six per cent. of these contracts were started before the formal order to begin had been issued by the department of works.

Eight and one-half months of the thirteen months' average life were taken up between the time of submission of the engineer's report and the ultimate approval of the contract. The average life of the contract was approximately one and one-quarter months, leaving, on an average, an interim of three and three-quarter months taken by the department of works officials in getting a contract under way.

It is only fair that this last statement be explained more fully, although it is a fact that the average time between the execution of the contract and the actual beginning of the work was three and one-quarter months. In twelve per cent. of the contracts, work was

¹This is due in considerable measure to the unprecedented growth of the city.

started before the execution of the contract, but a number of contracts, owing to the delays in the preliminary procedure, had to be carried over from one year to the next, due to climatic conditions.

Failure to Enforce Time Limits.

In addition to the secondary effects developing inefficiency in the works officials, which have been cited, it is of particular importance in this analysis of contract procedure to find that of the total contracts analyzed, seventy-four per cent. exceeded the time limit specified in the contract. Although there are many flaws in the machinery of the general government, there would seem to be no excuse for this laxity on the part of the works officials in pushing work to completion within the contract time. That this laxity was not productive of only unimportant delays may be understood when it is said that a further fact in this connection is that the average time consumed in completing the contracts exceeded the average specified time limit of those contracts by more than sixty-six per cent.

Full Authority to Enforce Time Limit.

All forms of contract in operation, and all specifications in force in the department of works, give to the commissioner, in his capacity as city engineer, broad, comprehensive and arbitrary powers to enforce specifications and contract provisions. Since conditions of the general government above referred to in themselves cause unnecessary delays in contract work, it is doubly important that the works officials not only prepare specifications, estimates and contracts fully adequate to produce proper results, but that they firmly enforce contract time provisions. In this way only can they partially counteract procedure delays beyond their control.

In seeking causes for delay in the general government, it was found that eight and one-half months were consumed between the time of the report of the engineer and the date of the approval of the contract by the board of control, and that thereafter one and one-half months, on the average, were consumed in the execution of the contract, its approval by the city solicitor, and the issuance of the official order to begin work.

Source of Statistics.

In all of the foregoing statistics the elapsed time reported is based upon the final method used to begin the work. In other words, if the work was originally initiated by regular procedure, but eventually had to be carried by force (Art. 9, Local Improvement Laws), the date of the engineer's petition used was the date of the petition under the final plan.

Although, in most instances, it would be quite proper to add to the elapsed time of the contract, the time taken up in preparing the engineer's report and in the preliminary work of petition for or against an improvement, this was not done in preparing this statement. The contracts considered were selected at random, and without any attempt to increase the time figures by selecting exceptional cases.

Procedure Suggested to Avoid Delays.

To expedite the performance of public work, in view of the facts disclosed, it is recommended:

- 1—That more care be given to the preparation of the engineer's estimate of quantities and total cost.
- 2—That the court of revision be authorized to review only the apportionment of the cost.
- 3—That the board of control and the works committee make a more positive effort to clean the slate at each meeting.
- 4—That the commissioner of works have prepared each week a progress "tickler", showing the exact status of every proposed work, including a tabulation of the elapsed time in the various operations.
- 5—That the right to extend the time limits on contracts be vested solely in the board of control, and that a policy of enforcement of these provisions, and the levying of liquidated damages for delay, be authorized and carried out.
- 6—That the practice of undertaking contracts before their final execution, and beginning work before the issuance of a formal order, be discontinued.
- 7—That the simplification of contract procedure be kept constantly in view in any proposed revision of existing laws.

Contract Bidding

Lump Sum Bidding Criticized.

All contracts in the department of works are let upon a so-called lump sum basis. More explicitly, this means that in pavement work the contractor bids an amount per square yard of completed pavement, which bid includes many incidental items, such as grading, curbing and flagging. In sewer work, the contractor bids an amount per lineal foot on each type of construction, this bid also including the cost of many incidental items. This procedure is not considered

proper by a great majority of private contractors and builders, and certainly is not conducive to proper contract administration in a city department.

Advantages of "Line Item" Bids.

There are many reasons why the lump sum bid does not produce the best results in city contracts, most of which are quite obvious. However, it may be well to point out that, only by the segregation of a large contract into kinds of work and work units, is it possible to test the efficiency of the department and the value and effectiveness of the work done. It is too easy to hide in a lump sum bid extra work and work not specifically authorized by the controlling body and expected by the people. It is impossible, except by pro rata analysis, to obtain a basis for comparison of costs between one year and the next, or between Toronto and any other city. Finally, the use of the line item unit cost bid principle in contract work provides a fair and equitable basis for partial payments (now estimated), and eliminates the necessity for the tabulation of prices for extra work now included in every contract let by the department of works.

The principle of tabulating prices for extra work is one which has arisen undoubtedly through attempts to eliminate arbitration on extra work, but wherever a large number of arbitration cases in contract work are found, there also one may expect to find inadequate and hasty estimates, on the part of the city, and lump sum bids, on the part of the contractor.

In a word, "line item unit cost" bidding is simply the unit cost idea applied to work estimates. In this kind of bidding, a price is obtained on each distinct unit of construction or equipment that goes to make up the whole job. No one price tendered, in such bids, is for a combination of units. Distinct from this practice, however, a "lump sum" bid is made up of items, practically each one of which represents a combination of units of work or equipment. Lump sum bidding, in this day of cost administration of public and private business, is certainly not warranted by the working conditions or the ultimate results obtained.

Extra Work Prices Criticized.

It was also found that, in the tabulation of extra work prices included in proposals for bids, a provision had been made whereby the city agreed to pay to the contractor the amounts set forth in the estimate as extra work prices, but that, in the event of a decrease in the quantities estimated, the city would deduct from the contractors'

payments at the rate of eighty-five cents on the dollar. If the contractor bid on a line item basis, there would be no need for any deducting regulation. Even under a continuation of the lump sum bid plan, there is no excuse for cutting the amount deducted for decreased quantities by fifteen per cent.

Anticipated Profits Explained.

Anticipated profits—which this fifteen per cent. was meant to cover—are not and never can be legitimately considered as equivalent to the profits which the contractor expected to make on a particular undertaking when he presented his bid. Damages in respect of anticipated profits are due to a contractor only to the extent that he himself has been involved by a preliminary expenditure of time or money. For such damages he should be reimbursed. This consideration can hardly be said to hold in contract work where deductions are made by a decrease in the standard items of work bid upon.

It must be admitted that extra work, wholly out of the scope of the original undertaking and not anticipated, is more costly than the regular work items. But deductions which may be made are deductions, not from extra work unlooked for by the contractor, but from the regular work items of the contract. As stated before, all such difficulties could be eliminated by the adoption of the line item principle in contract bidding, but if the lump sum bid is retained, the rate deducted for decreased quantities should be revised and the method corrected.

Water Main Bidding an Example of Bad Practice.

For the extension of water mains up to twelve inches in diameter, an annual contract is let upon a lineal foot basis. Under the terms of this contract, the city furnishes all material, with the exception of incidental supplies, such as lead caulking, etc. The lack of a definite program for water main extension makes it impossible to set up definite specifications, either as to location or quantities. A bidder must guess what has to be done, and in what part of the city the work is to be carried on.

Clearly this procedure is based on a wrong principle. If the department of works finds that it pays to carry on by city labor large undertakings in the roadway and other sections of the department, it would seem that such procedure could be followed profitably in the extension of water mains, especially since the city furnishes practically all of the supplies and materials. The only problem is the handling of the labor forces in the field. With the plant equipment

now available for use, it is only reasonable to suppose that water main extension could be carried on much more effectively by the department of works with its own labor than it is under the haphazard system of contract bids now in use.

Competitive Bidding by Department Commended.

One practice of the department of works is to be very strongly commended, as setting an example which might profitably be followed by other cities. By this is meant the practice of the commissioner to enter bids in competition with private contractors on public works contracts. In a great many cases the result has been to decrease the cost of public work, and to make sure that the public is protected against any possible efforts of contractors to agree upon prices or conditions of work.

Local Improvements

No operation in connection with public works activities is brought more forcibly to the attention of the property owner than the levying of assessments for local improvements. This is an activity which, by reason of its intimate relation to many citizens, might be expected to be upon an equitable basis.

Assessments for Local Improvements Not on Fair Basis.

In Toronto, local improvement operations, including the assessment of their cost, are on a basis far from just and proper. In general, such a situation with respect to local assessments is not exceptional, for in most cities local improvements have been financed upon very inequitable bases. But the situation in Toronto is exceptional in that while the inequalities of special assessment laws are usually fairly equitable in principle, but fail in practice, in Toronto neither the principle nor the practice of the law can be commended.

The local improvement act provides that a city may legislate by by-law for the local assessment of the cost of constructing sewers, pavements, roadways, gutters, sidewalks, bridge approaches, and practically every other kind of public works except general government buildings. It is not possible, in the space of this report, to cover completely all phases of the theory and practice of the local improvement act. Specific examples, dealing with the easiest of the assessable charges, have been selected.

Abutting Property Owners Must Help to Pay Maintenance.

The local improvement act states specifically that maintenance charges shall be borne by the city at large, but in a section imme-

diately preceding provides that the maximum period of warranty of maintenance in a pavement contract shall be ten years. The pavement contracts in Toronto included a ten-year guarantee clause until 1908, when the time limit was reduced to five years. In the early part of 1913 the council, over the objection of the commissioner of works, and in spite of the fact that every official and unofficial organization that has taken up this subject has advised the reduction of the guarantee period, changed the time limit back to ten years. Aside from the fact that this principle is bad in itself, and requires guessing on the part of every contractor, the inclusion of a ten-year guarantee clause in a pavement contract means that the contractor must add to his bid an amount—varying with the traffic, up to fifty per cent. of the total amount bid—which is simply and solely a maintenance charge. Thus it is undoubtedly true that a part of the cost of pavement construction now assessed against the owners of abutting property is not a construction but a maintenance cost.

Repaving Law Based on Discarded Theory of Benefits.

Another provision of the local improvement act open to serious criticism is that it permits, authorizes and encourages the financing of repaving and reconstruction in general through local assessment. This is a discredited principle, which is everywhere being wiped out of local improvement laws as rapidly as citizens realize its inequalities. It is absurd to assume that the owner of property abutting upon any street, particularly upon a main artery of travel, is responsible for the deterioration of the pavement in front of his property, caused by traffic from all parts of the city and country. Yet, by the provisions of the local improvement act, the property owner, and not the community, must bear the burden of rapid deterioration of pavement caused by heavy traffic passing his premises. The increased use of motor vehicles, and the larger general utilization of private transportation facilities, have eliminated almost completely, the local significance of city pavements.

The repaving provision of the Toronto law is, therefore, not only inequitable, but it also seriously affects the working out of a broad constructive program for public works improvements. Although it is possible for the council to force an improvement over a remonstrating petition, it is not a procedure attractive either to the official or the property owner, and for that reason a number of needed improvements are delayed too long. The community suffers because of local opposition.

Methods of Apportioning Street Paving Cost Criticized.

The last item of the local improvement procedure to be taken up in this report is one of both administration and theory. It concerns the methods for apportioning the cost of local improvements. This method is defined in a by-law which authorizes the "flankage" reductions of assessments upon corner property. The right to regulate the manner of apportioning the cost of local improvements is delegated to the city council by the municipal act. The law provides that sixty feet flankage reduction shall be assumed by the city where the corner lots are of a certain depth, and proportionate amounts for corner lots of varying depths.

The effect is to relieve the corner lot having pavement on both sides from a considerable part of the cost of one pavement. This is particularly interesting as mal-theory, when it is considered that, after years of research on the valuation of property under the Somers scheme of real estate valuation, it has been found that (on the average) seventy-two per cent. of the value of any lot lies within the half nearest the street. This Somers theory of assessable valuation is based upon the position of property with relation to transportation facilities, independent of location or lot lines. It is quite possible that the principle of flankage allowance has been fostered by reason of the fact that the principle of apportionment used is the "frontage" basis. Of all the plans used for apportioning the cost of pavement construction, none has proved more troublesome, more inefficient, or more inequitable than the frontage plan.

This local improvement procedure in Toronto, added to the involved structure of the general government, will largely explain the excessive elapsed time on contracts already mentioned in this report.

Changes Proposed in Local Improvement Laws.

To eliminate these difficulties, both in the theory and administration of the local government laws, we would suggest:

- 1—The elimination of non-local objects from those authorized as proper assessable charges.
- 2—The use of local assessments for non-local improvements in original construction only—where the department needs protection from over-zealous real estate operators.
- 3—The financing, wherever possible, of public works reconstruction through debentures chargeable to the city at large (excepting only real **local** improvements, such as house sewer connections, etc.).

- 4—The adoption of a scheme for apportioning the cost of local improvements which will recognize, at least in general lines, the factors which govern property values.

Railroad Area Pavements

General Pavement Conditions.

A casual inspection of the streets of Toronto gives the impression that the pavements are in very poor condition, but upon a more detailed and careful investigation, it develops that the pavements, exclusive of the street railroad area, are above the average. With the exception of a few streets, such as Winchester, McCaul, Eastern Avenue, and a number of the unimproved streets, the roadways proper are in fair condition. The pavements within the street car tracks and immediately outside of the outer rails are very poor.

Importance of the Railroad Area Pavements.

The track allowance or railroad area, so-called, is that part of the street between the outer rails and including one and one-quarter feet on either side.

On car track streets the most important part of the roadway, from a maintenance standpoint, is that within the railroad area. Heavy traffic naturally goes to the car tracks in order to obtain the reduced traction in the haul. In slippery weather, if the roadway proper is paved with a more or less smooth pavement, teamsters prefer to use the granite blocks of the railroad area, as they give better purchase for the horses.

Past Methods Bad.

In Toronto, it is evident at once that no definite policy for this class of work has been developed in the past, and it is even more evident that there has been a decided lack of proper co-operation between the department of works, the street railway company, and the Ontario railway commission. With the following of old and discredited practices in Toronto, and because of the further fact that there is, in most cases, a lack of proper concrete foundation, the ultimate result is inadequate for heavy traffic, unsightly, dangerous, and generally unsatisfactory.

Faulty construction methods, both in the pavement proper and the tracks, have caused and will continue to cause a very unsightly and, in many cases, dangerous condition in streets over which the street car lines operate. King Street, Queen Street, Yonge Street,

and practically all of the other heavy traffic streets, are only about fifty per cent. efficient as facilities for transportation, due to the condition of the track allowance pavements.

Repairs to Pavements Not a Proper Charge Against Capital Funds.

In following up the expenditure for track allowance repairs, it eventually developed that funds for this work had been provided through the issuance of ten-year debentures. By-law No. 5517 is a law authorizing the issuance of \$528,910.78 of debentures for financing reconstruction and repair work in the railroad area during 1908-1909-1910, and another by-law has been passed in the past month authorizing the issuance of \$963,890.25 more for the same purpose. The use of debentures for providing funds for payment of track allowance repairs, which last on an average considerably less than a year, means that the bonded debt of the city of Toronto in respect of this work will exceed the valuation of the work itself from ten to twenty times. Repairs are a maintenance charge, and as such are only chargeable to current revenue funds. In some cases reconstruction may warrant the issuance of debentures for financing the work, but in the case of the reconstruction of railroad area in the city of Toronto, where the twenty per cent. return from the street railway company more than covers all street repair expense, including construction and reconstruction, such practice only encumbers the debt service of the city.

Annual Cost of this Work Tremendous.

The total area of track allowance or railway area pavements is at the present time 605,854.2 square yards. Of this amount, 11,148 square yards are under guarantee by various contractors, and the cost of maintaining is borne solely by the contractor who originally guaranteed the work. Deducting the guaranteed area from the total area, there is a balance of 595,706.2 square yards, which must be maintained at the general expense of the city.

During the past year (to November 24th), \$177,424.01 has been spent in reconstruction, which means, translated to square yards, that approximately 60,000 square yards have been reconstructed. Deducting the reconstructed area from the city maintenance area, leaves a balance of 535,706.2 square yards as the amount of track allowance pavement to be maintained. During the past year (to November 24th), \$214,195.31 has been spent in maintenance, or an average maintenance cost per square yard of 39.98 cents.

Cost of November Repairs.

Since the first of November, over \$45,000 has been expended in repairing the railroad area pavements. Even with this very large expenditure for emergency repairs, the present condition of the railroad area (November 26th) is a disgrace to the city. How much of this money was wasted owing to poor construction methods, it would be difficult to tell. It is sufficient to say, however, that some of the repairs made within the last three weeks are to-day beginning to show signs of failure, and apparently it will not be long before the railroad area will be in about as bad a condition as it was on November 5th.

It must be remembered that this is the cost of repair work only. From a comparative standpoint, it is more than twice as great as the highest pavement maintenance cost on any class of roadway pavements ever known in the borough of Manhattan, New York City, where the average traffic is very much heavier than the average traffic in the city of Toronto. For the entire year of 1913, the cost of maintenance of stone block pavements in the borough of Manhattan was only 12.1 cents per square yard; in Philadelphia, on the streets occupied by the Philadelphia Rapid Transit Company, the cost for the entire year of 1913 was less than eight cents per square yard.

Nearly Two Million Dollars in the Last Five Years.

Looking at the matter in another way, if one adds to the cost of repairs the amount of money spent in construction and reconstruction, the total for the last five years amounts to \$1,884,420.35—\$3.167 for every square yard of track allowance pavement in the city of Toronto. This means that in the last five years every yard of track allowance pavement could have been reconstructed, with proper construction methods, and the cost of maintenance reduced to practically nothing. On the other hand, after this tremendous expenditure of nearly two million dollars in the last five years, Toronto is to-day burdened with a railroad area which will necessitate the expenditure of approximately two million dollars more in order to place it in a proper condition. Under present conditions the annual rate of maintenance of forty cents a yard will necessitate an expenditure of a quarter of a million dollars a year, and still fail to improve materially the condition of the streets.

What It Means.

After considering in detail the present condition of the track allowance pavements in the city of Toronto, we are forced to believe

that a large part of the \$1,884,420.35 expenditure in the last five years has been absolutely wasted, and that the continuation of the present construction methods will need \$500,000 a year to keep the streets even in a passable condition.

Need for Civil Service

Although the question of the ability or incapacity, the fitness or unfitness, the efficiency or inefficiency of those who do the city's work is one affecting every department of the government, it is a question of special importance to the department of works, because of the scope and volume of its work.

"Personal Influence" in Appointments.

An examination of the file of applications for appointment to positions in the department of works brought out the fact that, in a great number of cases, personal influence had been exercised in attempting to secure appointment. Personal influence by way of recommendation is a common practice in all private business, but personal influence in securing appointments to municipal positions flavors so much of politics that there can be no excuse for the continuation of a system which encourages such a practice. Outside the question of whether or not the personal recommendation of controllers, aldermen, and departmental chiefs has had any effect in the appointment of men for various positions, the administrator is entitled to protection from any possible criticism on this score. To eliminate this possibility, and to secure other advantages which are not invariably obtained to-day, we would suggest the establishment of a municipal civil service.

Civil service as used in this report means:

The examination of candidates for municipal positions along practical lines, and the determination of eligibility of such candidates examined.

The placing of most municipal positions within restricted lists, whereby only those persons whose names appear upon an eligible list of the civil service are eligible for appointment to such positions.

The establishment of proper service and efficiency records.

A classification of positions of service into class, rank and grade as a basis for the standardization of work and salaries.

Civil service does not mean that the hands of the administrator shall be tied in any way affecting the control of subordinates through salary reductions or discharges.

If such a civil service could be established in Toronto there is no doubt that the quality of personal service could be raised materially.

Personal Service Records.

The department has not maintained any records showing the number and class of employees, other than a list of the employees of the head office and various informal lists maintained in the section offices. Such a list was first prepared on request of your investigator. Neither does the department keep a list of eligibles for appointment to temporary or permanent positions. Applications for appointment to service in the department are filed away in a vertical filing cabinet in alphabetical order under subdivisions, classified according to kinds of positions, without first establishing the eligibility of the applicant.

A personnel record in card form should immediately be established. This card, by columnar arrangement, should provide for showing, among other things:

- Name of employee
- Address
- Date of appointment
- Position
- Salary
- Age
- Promotions
- Demotions
- Etc.

A list of eligibles for appointment to temporary and permanent positions in the department should at once be established and kept current, unless there is to be established a municipal civil service commission, as is recommended in the preceding section of this report.

FIRE DEPARTMENT

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GENERAL STATEMENT

The following report on the survey of the fire department is the result of a careful examination of its records, observations of procedure, interviews with officials of the department, and a field study. The study of the department was greatly facilitated by the chief and his assistants, who accorded the fullest co-operation.

Summary of Recommendations.

A general summary of the recommendations made are:

- 1—The appointment of a fire commissioner and a re-distribution of the functions of the chief.
- 2—The immediate establishment of a training school for firemen.
- 3—Improvement of methods of discipline.
- 4—The inauguration of a fire prevention campaign and the appointment of a fire prevention commission.
- 5—Appointment of additional firemen.
- 6—Adoption of definite rules governing appointments and promotions.
- 7—Establishment of definite procedure governing trial and punishment.
- 8—Designation of a department surgeon.
- 9—Establishment of a board of honor.
- 10—Revision of pension system.
- 11—Placing fire alarm wires underground in congested parts of city.
- 12—Furnishing fire halls and headquarters with proper maps.
- 13—Transfer of the duty to inspect city lights to another department.
- 14—Establishment of a central purchasing agency for all supplies.
- 15—Relieving the secretary of many of his present functions.
- 16—Adequate test of hose to replace present insufficient tests.

- 17-Budget estimates on scientific basis.
- 18 Standard specifications for department supplies.
- 19 Procedure for disposition of condemned property.
- 20 Establishment of check and control upon storeroom.
- 21-Inventory of all property.
- 22-Inspection of supplies.
- 23-Standardization of fire halls.
- 24-Searchlight for night fires.
- 25-New records and reporting system.

The Appointment of a Fire Commissioner and a Redistribution of the Functions of the Chief.

Much of the chief's time is given to routine work, which should be performed by subordinates, with the result that he lacks proper control over the uniformed force and the business management.

To improve the efficiency of the force, the report points out, it is necessary that the chief give his entire time to directing the activities of the uniformed force, and that, for purposes of administering the general department, a fire commissioner be appointed.

The placing of the administration of the department under the jurisdiction of a commissioner would not only bring the department to a higher standard of efficiency on the fire fighting side, but would likewise place the administrative branch of the department upon a business basis.

The Immediate Establishment of a Training School for Firemen.

The city has grown rapidly in population and importance. Notwithstanding this rapid growth in population, area and importance, and the increase of commercial activity in the city of Toronto, and notwithstanding the steady increase in the annual fire loss of the city, Toronto's fire department has not adequately prepared itself to meet the demands made upon it.

New and modern fire fighting apparatus has been purchased and installed, and additional men added to the rolls of the department, but the efficiency of the force has not increased to a degree com-

mensurate with the city's needs. The community has not availed itself of the most improved methods of fire extinguishment, and practically no effort has been made to systematize fire prevention.

The firemen have not been trained to the best practices, either in fire extinguishment or fire prevention inspection. This lack of training may be said to be the department's principal weakness.

The report not only calls attention to the need for scientific training of firemen, which is no longer disputed, but suggests the methods which should be employed in the training of a fire fighter. It recommends to the council the immediate establishment of a training school for fire service.

Improvement of Methods of Discipline.

The study of the firemen at work in the field showed a lack of discipline, which was apparently largely due to a lack of training. With the establishment of a training school and a resultant better training for the men, the work of improving the discipline of the force could be successfully taken up.

The Inauguration of a Vigorous Fire Prevention Campaign and the Appointment of a Fire Prevention Commission.

Everywhere in the city may be seen evidences of the need for immediate fire prevention inspection, coupled with improvements in building construction and added exits and fire escapes.

An inspection tour of a number of the theatres of the city showed not only a disregard on the part of some theatrical managers for the most obvious and fundamental fire prevention measures, but likewise an absolute failure upon the part of the fire department to enforce the provision of the by-law requiring that theatres shall properly safeguard their audiences against injury to life and limb in fires and panics.

The report cites the conditions found existing in theatres which, when discovered, made necessary the immediate filing of an emergency report with His Worship the Mayor. This brought about an official inspection by the fire department and the acting city architect, with a result that a number of theatres were ordered to install fire fighting apparatus and additional fire escapes, to re-surface wooden staircases, to remove obstructions in lobbies, and to make many important structural changes.

The report recommends the appointment of a fire prevention commission to consist of the fire chief, the city architect, the city property commissioner and two citizens, and also urges the establishment of a set of fire prevention rules and regulations.

The Appointment of Additional Firemen.

The increase in population of the city and the erection of many additional buildings has greatly increased the fire hazard of the city, thus placing added responsibilities upon the fire department, but the number of firemen has not been increased in proportion to the increase in the demands made upon the department.

If a proper campaign of fire prevention is to be carried on, the appointment of additional firemen will be necessary.

The Adoption of Rules Governing Appointments and Promotions.

The method of making appointments and promotions is declared in the report to be defective and against the interests of efficiency, in that the city has no control over its appointments; there is a lack of character investigation, and the method of making promotion is not conducive to enthusiasm and ambition among members of the force.

The Establishment of Definite Procedure Governing the Trial and Punishment of Delinquent Firemen.

The lack of discipline before referred to is attributed in part to the leniency of the chief in punishing delinquent firemen, and the report suggests the adoption of a by-law providing for the trial of delinquent firemen, according to definite rules of procedure, and conferring the power of reinstatement of dismissed firemen on the board of control instead of on the chief of the department.

The Designation of a Department Surgeon.

The present practice of paying firemen full pay while on sick leave, and the failure to require firemen excused for sickness to be examined by a city physician or a department surgeon, are described as practices not conducive to good discipline. A reduction in pay of firemen while on sick leave, and a designation of a department surgeon are recommended. The recommendation as to reduced pay to firemen on sick leave is not made, however, as applying to firemen injured in the performance of duty.

The Establishment of a Board of Honor.

The report points out that there is in force at present no method of awarding departmental recognition to firemen for heroic acts.

No acts of bravery should go unrewarded by the department. It is recommended that there be established a board of honor which shall annually award a department gold medal for distinguished acts of bravery involving a risk of life.

A Revision of the Pension System.

The present pension system is declared to be upon an unsound financial basis, and defective in many respects, and a revision of the plan of pensions is recommended.

Plan of Fire Alarm Telegraph Wires Underground in the Congested Parts of the City.

Overhead fire alarm telegraph wires in the congested value district of the city are declared by the report to be a menace, and the city is urged to place these wires underground as soon as possible. The report suggests using the conduits of the Hydro-Electric system.

Attention is called to the fact that frequently the fire alarm system is thrown out of service by the removal of these overhead wires during fires.

A revision of the records and the introduction of a reporting system are recommended in order to perfect supervision over the fire alarm telegraph system.

The Furnishing of Fire Halls and Headquarters with Proper Maps.

The report points out that the department is without proper maps and charts showing the location of water mains, fire hydrants, danger zones, buildings regarded as extra hazardous, and buildings in which combustibles are stored, and giving other detailed information necessary to enable prompt and efficient service by the firemen. The immediate furnishing of the fire halls with such maps is urged.

Transfer from the Department of the Duty to Inspect City Lights.

The supervision and inspection of the city street lights is in no sense a function of the fire department. By retaining the control of this branch of the city business in the fire department, its work is increased, with the result that it is handicapped in the performance of its regular duties. It is recommended that the inspection of lights be transferred to the department of works.

Purchase of All Supplies Through a Central Purchasing Agency.

The present method of purchasing supplies through the secretary of the department is declared to be unwise, and not in accordance with the most approved business practices.

The chief of the department fails to exercise any proper control over the purchase of stores and distribution of supplies and material.

The methods of administration of the business affairs of the department have not been improved to meet the added pressure of business.

The report declares that the purchase, inspection, and control of supplies could be performed with greater economy and more efficiency through a central purchasing agency.

Secretary to Be Relieved of Many Present Functions.

The present functions of the secretary are so numerous as to make impossible his giving the proper amount of attention to the duties he is required to perform. He should be relieved of many of his present duties.

Adequate Test of Hose to Replace Present Insufficient Tests.

No adequate test of hose is now made, the practice being to test one or two lengths out of each consignment of thousands of feet. A laboratory test and a pressure test of not less than twenty per cent. of each delivery are recommended.

Preparation of Budget Estimates Upon a Scientific Basis.

The present method of preparing budget estimates for the fire department is declared to be unscientific and not upon a proper basis. A proper plan of budgetary estimating is suggested, providing for a control and check upon appropriations.

The Establishment of Standard Specifications for Department Supplies.

Supplies are at present purchased upon the specifications provided by the manufacturer, and, with the exception of purchases of winter and summer uniforms the department does not provide any standard specifications. The report declares that standard specifications should be established for all department supplies.

Plan of Procedure for the Disposition of Condemned Property.

The present method of disposing of condemned department property is described in the report as not being in the interests of economy and proper business management. The report recommends the adoption of a plan of procedure for the disposition of all condemned department property.

Establishment of a Check and Control upon the Stores.

Supplies are now distributed through the storeroom without the department maintaining any control or check. Recommendations are made for the improvement of supplies distribution.

The Taking of an Inventory of all Department Property.

No proper inventory of the property of the department has ever been taken. The inventory which was made several years ago was based upon the department's own statement as to its properties. Council should cause an inventory of the department property to be made at once by outside officials, and annually hereafter.

Provision for the Inspection of Supplies Should be Made.

No proper system of inspection of weight, quantity or quality of supplies is now in force. The report recommends laboratory tests and a proper check and control over inspection of all supplies delivered.

Standardization of Fire Halls.

The fire halls are not now constructed as the result of any standardized plan. The standardization of fire houses, the report points out, would result in greater economy in construction, and added comforts and conveniences for the fire-fighting force.

The Purchase of a Search Light for Use at Night Fires.

The department is at present without any adequate means of furnishing proper light to the firemen when fighting night fires. The purchase of a search light and acetylene gas torches is recommended.

Revision of All Records and Inauguration of a Reporting System.

If the department is to be placed upon an efficient basis, a complete new system of records and reports must be inaugurated at once.

The department is without any adequate records. Reports are made orally, and the chief depends entirely upon his memory for matters which should be permanent records of the department.

A complete reporting system and plan for the inauguration of proper records is outlined in the report.

THE WORK OF THE DEPARTMENT—PREVENTION AND EXTINGUISHING OF FIRES

As has been suggested, the primary purpose for which the department exists is to prevent and extinguish fires. In the report which follows, special attention is given to prevention.

Fire Prevention

Notwithstanding the fact that nothing is more important in modern fire-fighting than fire prevention, the Toronto fire department is exerting little effort toward fire prevention work. Not only does the department fail to perform the ordinary duties of a fire department in connection with fire prevention work, but it does not even attempt to enforce many provisions of the by-laws relating to fire prevention.

Laws For Prevention Not Enforced.

While it is indeed important, in order to reduce the fire waste of Toronto, that the fire brigade attain the highest efficiency in methods of fire extinguishment, it is equally vital, if not of more importance, that efficiency in fire prevention work be developed to the highest degree. Efficiency in methods of fire extinguishment can be accomplished by the careful training of the members of the fire brigade, but efficiency in fire prevention can never be attained except with the co-operation of the public and by a rigid enforcement of the laws governing fire prevention. Not only is it true that no fire prevention campaign is being waged by the fire department, but there is, unfortunately, nothing to indicate that any other city department is making an effort in the direction of fire prevention.

Firemen Do Not Make Inspections.

The fire department does not make any regular inspections for the enforcement of fire prevention rules and regulations. District chiefs make occasional inspections of buildings within their districts to familiarize themselves with the structural conditions of the buildings, but not to enforce fire prevention regulations. Such inspections by the district chiefs are not reported upon, unless they are made as the result of a complaint or upon the specific orders of the chief of the department. The reports received in such cases are informal memoranda, and are not filed in such a manner as to be available for ready reference.

Department Made One Tour of Inspections.

In April of 1913 a "clean-up week" was conducted by the various city departments. At that time the fire chief caused five thousand house-to-house inspections to be made by uniformed firemen. The chief states that in no instance where fire prevention recommendations were made by the firemen was there a refusal to comply with the order, and, consequently, no prosecutions were brought. This week's tour of inspections, however, constitutes the entire effort of Toronto's fire department to enforce, by inspections, the observance of ordinary fire prevention rules.

The reports by firemen during the "clean-up week" were not made pursuant to any rule or standard plan, but were made in such a careless manner, and without due regard for the creation of desirable records concerning property in the city of Toronto, that they are practically of no value as a record.

The chief of the department freely admits that this one week's fire prevention campaign was of great value, and produced excellent results in the way of ridding many buildings of accumulations of rubbish, which were of themselves a fire hazard.

The chief's excuse for failing to maintain a house-to-house inspection system is that his force is too small. Even if it were admitted, for the present, that the fire-fighting brigade is too small, this could scarcely be a just reason for complete lack of inspection. It may be that the chief, with his present force, would not be able to conduct a vigorous house-to-house inspection, nor to conduct a campaign of education such as would be wholly desirable, but he should at least be able to carry on some inspection work and carry on a campaign of fire prevention education which would be instrumental in reducing the fire waste and fire loss of the city.

Inspection by Firemen Desirable.

Inspections by members of the uniformed fire force are extremely desirable, even though a city maintains a civilian corps of fire prevention inspectors. This is because inspections by uniformed firemen afford them an opportunity to familiarize themselves with the interiors of the buildings which they may some day be called upon to enter for purposes of fire extinguishment. It is quite essential to efficiency in fire extinguishment that a fireman study and know the interior of buildings which his brigade is required to protect. A properly trained and experienced fireman, because of his training and experience, is better fitted to make fire prevention inspections than any one else.

No Inspection of Theatres, Moving Picture Shows, Etc.

While the excuse of the department for failure to maintain a general system of fire prevention inspection was the scarcity of firemen, the department was unable to offer any valid excuse for its failure to enforce the sections of by-law 6401, relating to the safeguarding of those persons attending performances in theatres, moving picture shows and other places of amusement.

Many Provisions of Law Totally Ignored.

With the permission of the chief of the department, an inspection of six of the eight theatres of Toronto was made. This inspection revealed not only the existence of many technical violations of the law, but, in at least four of the theatres inspected, an absolute disregard for the by-law, and for the most commonplace fire preventive measures. Because of these findings, a preliminary report, citing the conditions found, was filed by the committee with His Worship the Mayor on the 19th of November, 1913. The facts contained in this preliminary report were immediately submitted to the chief of the fire department and the acting city architect.

Many Improvements Ordered Immediately.

Subsequently, on December 11th, a re-inspection of these theatres was made. Although some of the dangerous conditions originally found had not then been corrected, much progress was being made and considerable activity shown in providing these theatres with safety devices, additional exits and fire escapes, in compliance with the by-laws.

The following summaries of reports of inspections of certain Toronto theatres serve to illustrate not only the disregard of the theatrical managers concerned for the safety of their patrons, but likewise the failure, on the part of city officials, to enforce the by-law providing for adequate exits, fire-fighting apparatus, and fire prevention measures. It will be noted that these theatres were not examined as to their structural condition, but merely to learn whether they were observing the by-law referred to.

Theatre A

Theatre A, which has a seating capacity of almost two thousand, and which is housed in an old non-fireproof building of inferior construction, was not equipped with a sprinkler system, such as is required by section ninety of by-law 6401. Nor were there any fire hooks, fire axes, fire buckets or water casks upon the stage or in any part of the house, although all of these are required by the same by-law.

There were no fire alarm telegraph boxes connected with the city service, as called for in the by-law.

While the theatre, in accordance with the law, was equipped with two outer courts, both of which were city lanes, one of the courts was badly obstructed with lumber and broken stones immediately in front of important exits.

The diagram appearing in the program of this theatre indicated clearly two exits on the ground floor leading from proscenium boxes to the outer courts. When examined on different occasions, not only were both of these exits found to be locked and wired, but one of them was fenced up on the outside.

Exits Inadequate and Dangerous.

None of the exits on the auditorium floor or on the upper right wall of this theatre were equipped with the necessary red light. The management, without objection from the fire department, and despite the legal requirements with regard to exit lights, had installed in the exit doors glass panels marked "exit", which were lighted from a light on a pole in the courtyard, more than thirty-five feet away. During the day, of course, the management depended upon natural light to illuminate these translucent exit signs.

All of these glass exit signs were in violation of the by-law, in that they were upon the door itself, and not over the door, as specifically required. For some reason, which could not be explained, in direct violation of the by-law, each of these exit signs had upon it a roller shade. The type of bolts used on the exit doors, being manual bolts and not automatic panic bolts, did not comply with the by-law.

The gallery, which accommodates 400 people, had one fire exit, which was a door leading out on to the roof, blocked by a large skylight. From this roof there was no fire escape and no means of escape. Upon one section of the roof there was an old wooden ladder to the roof of an adjoining building, from which there was absolutely no means of egress. This condition existed in spite of the fact that there is plenty of space available for the erection of ample and safe fire escapes, leading from the first roof to the outer courts.

The by-law directs that there shall be kept burning continuously during performances two gas lights at the foot and head of each staircase. This theatre had but one gas jet in the entire building, and this was located in the main lobby.

The by-law calls for two-leaf doors in all fire exits. Yet, the exits on the upper floors of this building, from the balcony and gallery, were but single doors.

All of the guard rails on the staircases and fire exits were of wood, as were the staircases themselves.

The exit from the gallery was not even indicated upon the diagram in the program. Upon this gallery there was not a single piece of fire-fighting apparatus.

Staff and Dressing Room Conditions Bad.

Although the stage was of old wooden construction, the only fire-fighting apparatus thereon consisted of a single hose and two small chemical tanks.

The doors leading from the rear of the stage into the carpenter shop and scene storage room, instead of being of fireproof construction, were flimsy, dried-out wooden structures.

Another exit from the stage to an adjoining non-fireproof building, in which are located the dressing rooms, had an ordinary wooden door instead of a fireproof door. This adjoining building had no sprinkler system, and was even without fire escapes.

The fifteen dressing rooms, all of them located in this adjoining building, were without any fire-fighting apparatus. Their walls were not even covered with sheet metal, such as ordinary precaution against fire would require.

The floors and shelving in the dressing rooms were of wood. The windows looking out from the dressing room upon the street were obstructed by permanently fastened storm beams, thus affording no means of exit and no ventilation, such as the by-law requires.

There was no speaking tube from the stage to the box office, although such communication is not only required by the by-law but described in detail. The only connection between the stage and dressing room was a buzzer with a push button at both ends.

The only means of exit from the fly galleries is a single wooden staircase, one foot nine inches in width, and almost vertical.

Employees Not Trained to Fight Fire.

The employees of this theatre were not furnished with printed or written instructions as to their duties in case of fire or panic, nor were any fire drills conducted, either by the management or by the chief of the fire department, although the chief is directed to conduct such drills by by-law 6401.

This theatre has an employee who was formerly connected with the fire department. But he performs none of the functions of a fireman, and was found, upon each visit to this theatre, taking tickets at the door.

While it is true that this building was in use as a theatre at the time of the passage of the present by-law and the two preceding by-laws, it is also true that the alterations necessary to make this building comparatively safe in case of fire or panic involve no considerable structural changes. Such safeguards as would ensure compliance with the law could readily be installed without great expense or inconvenience.

Many Improvements Follow Inspection.

When this theatre was re-inspected on December 11, 1913, many changes had already been effected, and all were made by the management without opposition just as soon as they were ordered by the fire chief. Some of the improvements observed were:

The installation of a fire alarm telegraph box.

Placing upon the stage the necessary fire buckets, fire casks, fire hooks, axes, additional new hose, and additional fire extinguishers.

Cutting away the skylight, which was an obstruction to the exit from the gallery, and providing means of escape from the roof to which this exit led, through an adjoining building, which had been lighted and equipped as an emergency exit.

Changing the exit lights to conform with the law.

Opening two additional exits, one from the balcony and another through the ladies' retiring room on the main floor.

Correcting the diagram of exits so as to make it conform to real conditions, and a number of minor changes.

Theatre B

Theatre B has a seating capacity of approximately two thousand. It is equipped with a gallery seating five hundred. Although this house is, perhaps, in the worst condition of any visited, it is but ten years since it was completely reconstructed, following a fire which destroyed practically the whole building.

In this house there was an absolute disregard for the most ordinary protection against fire, and this without objection on the part of the fire department.

The wooden staircase leading from the gallery to the street was so out of repair as to make it a menace to life. The surface covering of the stairs was badly torn and broken. The staircase was so steep as to make escape from the gallery in time of panic, without loss of

life, almost impossible. Notwithstanding that a man was killed on this staircase about two years ago, when it was in practically the same condition, no order to repair the steps was served upon the theatre, and no repair was made.

Bad Exits.

Two exits from the auditorium were practically useless in case of fire, because of the absence of proper steps leading from them. One of these exits had to be approached by means of a narrow, portable staircase, fastened by a hook to the doors of the exit. During the performance, in the event of a panic, this staircase would have to be unhooked and lowered. The four steps of this staircase were only four and one-half inches in width. The other exits had even less adequate steps. By cutting away part of the brick-work, improvised steps, one three and one-third inches in depth, and the other scarcely six inches in depth, were created. This exit is exactly two feet six inches from the floor level, and one of the improvised steps has a rise of one foot four inches, another, nine inches, and the third, five inches.

The gallery, which is exceedingly steep and high, has three fire exits, two of which open from the extreme top of the gallery. There are two small, iron staircases leading from these exits to the roof of a lower part of the same building. These fire escapes were so arranged that persons using them would be forced to return to the burning building and make their flight down the wooden staircase referred to above.

No Exits from Dressing Rooms.

The ten dressing rooms of this theatre are located in the cellar. All of them are constructed of ordinary thin pine board partitioning. The shelving is wood, and the structural condition poor. Except for the extension of a crude ventilating flue into the cellar, the dressing rooms are entirely without means of ventilation. The only means of exit is afforded by an old, narrow, poorly constructed, dried-out wooden staircase which leads from one end of the cellar to the stage proper. This cellar, when examined, was found to be unclean, and there were observed accumulations of rubbish.

These conditions were permitted to exist in spite of the fact that the by-law requires that all dressing rooms be built of fireproof materials, that each dressing room shall be adequately ventilated, and that adequate exits be provided leading from the dressing rooms to outer courts.

Asbestos Curtain Old and Worn.

As a means of protection against a stage fire reaching the auditorium, the asbestos curtain, as required by law, forms the most important part of the fire equipment of a theatre. The by-law requires that the asbestos curtain shall be encased, on either side of the proscenium arch, in a metal groove not less than six inches in width.

Despite this mandatory provision of the law, and without objection on the part of the fire department, the asbestos curtain in use in this theatre was in such a condition as to be in violation of the law, and of no use as a protection against fire. It was old and of a poor grade of material, it was worn and torn, and the management had failed utterly to provide metal grooves on either side of the arch.

No Gas Lights.

The provision of the by-law requiring two gas jets to be kept burning continuously during the performance was violated in that there were no gas jets at the head and foot of the staircases.

Obstruction of Lobby.

The main lobby, which should be free and open, was obstructed by a showcase and a large brass railing, both dangerous in the event of a panic.

No Firemen Employed; No Fire Drills.

This theatre, despite the law regarding the subject, did not retain any experienced fireman and conducted no fire drills, either under the direction of the management or the supervision of the fire department.

Lack of Fire-fighting Apparatus.

Although this theatre was equipped with a sprinkling system for the stage and dressing rooms, there was a total absence of fire-fighting apparatus, such as fire hooks, axes, water casks and chemical tanks. The position of the standpipe on the stage was awkward and not in accordance with good judgment, so that it was not properly available for use in case of fire. The hose attached to the standpipe was in such poor condition as to make it useless. The hose in the rear of the main lobby was equally bad.

Moving Picture Booth on the Stage.

Regardless of the law upon the subject, it is essential, as a means of protection against fire, that a theatre stage be free of non-fire-

proof or combustible materials. It is also essential that all scenery be dipped in fireproofing fluid, and that all walls and other surfaces be painted with a fireproofing paint. But in this theatre the stage is congested with flimsy, non-fireproof materials, ordinary pine wood partitioned rooms and, at the extreme rear of the stage, there is a moving picture booth. This booth, despite the law governing the manner in which moving picture booths shall be constructed, has no vent to outer air. The condition in which the stage was found upon several visits was such as to make it a menace to the safety of those using it.

Accumulation of Rubbish.

Accumulation of rubbish was found in several parts of this building.

Outer Court Blocked.

One of the outer courts to which exits led was observed, on several occasions, to be blocked by a team and wagon.

Building Unfit for Use as a Theatre.

The general condition of this building was such as to make it totally unfit for use as a theatre.

Few Changes Follow Inspection.

When this theatre was reinspected on December 11, 1913, few changes had been effected. Among these were the widening of the aisles, on the main floor, immediately adjacent to the two objectionable exits referred to above. The same old asbestos curtain, tattered and torn, was still in use, although cheap metal grooves had been provided on either side of the proscenium arch. Hooks and axes, water casks and buckets, had been provided; but the general condition of the theatre, with its many objectionable features, remained practically the same.

Theatre C

This theatre has a seating capacity of approximately two thousand. The main part of the building is of very old non-fireproof construction, while the part of the building in which are located the stage and the dressing rooms is an annex, built within the past few years, but not of fireproof construction.

Smoking is permitted in all parts of the building.

Locked Exits.

On three different visits to this theatre, two of the exits were found locked during performances. On one visit, two exits were

found locked, and one very difficult to open because of a defective panic bolt. One of the principal exit doors was equipped with a spring lock, which could only be operated through an electrical connection with the box office, and was kept locked during performances, in direct violation of the law. Two of the exits were without proper lights and signs above them, such as the law requires.

Dressing Rooms Not Properly Ventilated.

The dressing rooms, which are situated in the cellar beneath the stage, were not properly ventilated, though of fireproof construction.

No Fire-fighting Apparatus on Stage.

Water casks, water buckets and hooks required by the by-law for use on the stage, were not to be found in this theatre.

Fly Galleries Congested.

The fly galleries were all congested with flimsy scenery stored there and not being used in connection with the current performance.

Hose Reels Covered by Scenery.

The two reels of hose connected with the standpipes on either side of the stage were not available when examined, because they were completely covered with heavy scenery, which would have to be removed before water could be obtained.

No Fire Drills; No Firemen.

Section ninety-four of the by-law, which requires that each theatre shall conduct fire drills at least twice in every calendar month under the supervision of the chief of the department or a subordinate officer detail, was violated in this theatre. No fire drills were ever conducted, either by the department or by the management. The theatre did not employ an experienced fireman, nor were the employees provided with written or printed instructions as to their duties in connection with fire or panic.

No Gas in Building.

Inasmuch as there was not even a gas connection in the entire theatre, section 87, sub-section 7, of by-law 6401, which requires that there shall be kept lighted continuously during performances two gas jets at the head and foot of each stairway, was violated, and without objection on the part of the fire department.

The manager of this theatre admitted his total ignorance of the requirements of the by-law as relating to fire equipment in theatres, and stated that neither the fire department nor any officer of it had ever made any objections to the conditions existing in his house.

Accumulation of Rubbish.

Rubbish was found stored in various parts of this house.

Wooden Staircases in Need of Repair.

The wooden staircases leading from the gallery to the street were found badly in need of repair. The surface covering of the steps was badly worn and dilapidated.

Improvements After Inspection Only Partly Satisfactory.

When this theatre was reinspected on December 11, 1913, the surface covering on the steps leading to the gallery had been repaired, gas jets had been installed at the head and foot of staircases, and the necessary axes, hooks, water casks and buckets had been placed upon the stage and in the dressing rooms. The hose had been properly tested, and additional fire extinguishers installed. But two exits were found locked during performances, the theatre had not retained any fireman, and fire drills had not been started. Smoking was still permitted in the dressing rooms, and accumulations of rubbish were still found in some parts of the building.

Theatre D

This theatre has a seating capacity of nearly two thousand, with a gallery accommodating four hundred and seventy-five. The building is of non-fireproof construction.

No Fire-fighting Apparatus.

This theatre was not equipped with the necessary number of chemical fire extinguishers. There were no fire hooks, axes, water casks and buckets, such as the law requires, and the hose on the stage was completely covered with heavy scenery, making it unavailable for use in case of emergency.

No Fire Drills; No Firemen.

This theatre had no house firemen and conducted no fire drills. The employees were not supplied with printed or written instructions as to their specific duties in relation to fire and panic.

Asbestos Curtain Did Not Comply With Law.

In that the asbestos curtain was too close to the footlights and not set in metal grooves on either side of the proscenium arch, the law was not being complied with.

Scarcity of Fire Escapes.

Practically all of the exits in this theatre open into interior fire escapes, with wooden stairs and wooden hand rails, there being but one outside fire escape.

Dressing Room Windows Obstructed.

The dressing rooms of this theatre are situated in a building adjoining the stage, which is without adequate fire escapes. The windows of the dressing rooms were all locked and obstructed by outside storm windows, in violation of the by-law.

No Gas in Halls.

No gas jets were found at the head and foot of staircases, as required by law.

Exits Covered with Debris.

The exits on the main floor were blocked, in violation of law, while the exits from the gallery were without signs and red lights, such as the by-law demands.

Work Shop on Fly Galleries.

A fully equipped sign painting shop was found in operation in the fly-loft, despite the prohibition contained in the by-law against workshops in the fly-loft or upon fly galleries.

No Sprinkler System.

This theatre was without a sprinkler on the stage or in the building in which the dressing rooms were located.

Some Improvements Follow Inspection.

When this theatre was reinspected on December 11, 1913, it was observed that the stage had been equipped with the necessary fire axes, hooks, water casks and buckets, a contract had been let for adequate outside iron fire escapes, arrangements had been made for installing gas lights at the head and foot of staircases, and additional fire extinguishers had been placed upon the stage and in the dressing room building. But the windows of the dressing rooms were still obstructed, and no sprinkler system had been ordered for the stage.

Theatres E, F and G

These three theatres are of modern fireproof construction, but in two of them no firemen were employed and no drills conducted.

In theatre E, there is no fire alarm telegraph box connected with the city service, as is required by law.

The interiors of theatres E and F were not inspected, because the management refused to allow an inspection while the performance was going on.

Different Attitude of Managers.

It is interesting to note here the difference in attitude of theatrical managers toward the safety of their audiences. Theatre G, which is a modern fireproof building, contains many safety devices, installed at considerable expense, which are not called for or required by the by-law. In this theatre, the management conducts fire drills weekly, and the employees, when examined, showed an intelligent understanding of their duties in case of fire or panic. An examination of the employees in the other theatres showed a total ignorance both of their duties in case of fire or panic and of their responsibilities.

A Model Theatre.

This theatre may be taken as a model, not only of construction, but also of careful management, with due regard for the safety of the theatre-going public. Although the manager of this theatre received no instructions nor advice from the fire department, he has studied carefully the improved practices in connection with the handling of theatres in times of panic. His orchestra is instructed as to its functions, even to the detail of having practised a particular overture to play. The audiences are dismissed nightly through the regular fire exits of the theatre, in order that they may familiarize themselves with these exits. This affords a constant test of the efficiency of both the exit doors and the fire escapes.

Partial Compliances with Law Regarding Flues.

While all of the theatres inspected were equipped with flues, but three of them complied with the by-law. One theatre had a flue which could not be operated; but in this instance the city architect's office had served an order for the installation of a new and more improved flue.

Responsibility for Moving Picture Houses Divided

The responsibility for the inspection of moving picture houses, of which there are eighty-seven in the city, is divided between the provincial authorities, the fire department, and the city architect's office. For the city, moving picture shows are licensed by the police department. But before a municipal license can be issued, the moving picture theatre must procure a license from the province. The municipal by-law provides certain regulations for the conduct of moving picture houses, and the province has a separate set of regulations, which are enforced by provincial inspectors and the police.

Because of these two sets of regulations, there has been a conflict of authority between the municipal fire department and the provincial inspectors.

The contention of the provincial authorities is that the fire department and the city architect have no power to inspect moving picture operating booths. Hence, because of this contention, notwithstanding the by-law which requires supervision of the moving picture houses by the local authorities, the fire department has exercised no control and conducts no inspections of moving picture houses.

Uncertainty as to Jurisdiction Should be Cleared Up.

It is recommended that the city solicitor take steps immediately to determine the jurisdiction of the city authorities in the matter of regulating moving picture shows.

It would seem, since the moving picture house has become a fire department problem in most large cities, that the municipal authorities should have jurisdiction in the matter of inspection, even if the inspections were for the purpose of enforcing the provincial statutes.

Steps should be taken at once to provide the municipal authorities with adequate power of inspection of moving picture houses, particularly because, in the event of fire, it is the municipal fire department that is confronted with the duty of fire extinguishment and must carry the responsibility for the lives of persons attending these shows.

Fire Prevention Campaign Should be Begun at Once.

A vigorous campaign of fire prevention should be begun at once. To conduct such a campaign efficiently, citizen co-operation is necessary, and a campaign of education must be established.

For this purpose, council should create a fire prevention committee, to be composed of the chief of the fire department, the city architect, the city property commissioner, and at least two private citizens.

This commission should establish a set of rules and regulations upon the subject of fire prevention. Steps should be taken to insure the co-operation of all city departments with the commission for the enforcement of these rules. Householders should be circularized from time to time, and their attention called to common practices which increase the danger of fire.

The fire department and the fire prevention commission should solicit the co-operation of all civic agencies of Toronto. By-laws should be adopted giving full power to the members of this commission, or their legal representatives, to enforce preventive measures, and these powers should be especially broad. They should have power to:

- 1—Inspect any building, structure, vessel, place or premises.
- 2—Remedy any condition found in violation of any law or by-law in respect to fires or the prevention of fires.
- 3—Require the installation of automatic fire alarm systems, fire extinguishment equipment and adequate and safe means of exit.
- 4—Require to be vacated any building or structure which is inadequately protected against fire.
- 5—Require any vessel anchored near any dock to be removed to a place designated by the commission, provided the vessel is on fire or in danger of catching fire, or is, from the nature of its cargo, a menace to shipping property on the water front.
- 6—Require regular and periodic fire drills in factories, stores, schools, hospitals and asylums.
- 7—Declare a building which is deficient in fire extinguishment equipment, or which, by reason of contents or overcrowding, is perilous to life and property, to be a nuisance.
- 8—Abate such nuisance by compelling the owner to place the building in a condition of safety.

Present Force Insufficient.

Uniformed firemen have been declared to be the most competent inspectors for fire prevention work. As stated elsewhere in this report, the use of uniformed firemen for making fire prevention inspections is of special advantage to the efficiency of the fire-fighting force, since it familiarizes its members with structural conditions in the buildings.

The present force, however, is insufficient for the inspections which should be made. The appointment of additional firemen for this work is recommended.

There can be no doubt that the taking of such steps as are here recommended would materially reduce the fire loss of the city of Toronto.

Fire Extinguishment

Greater Efficiency in Fire Extinguishment Needed.

In addition to a thorough campaign of fire prevention, it is necessary that the department be brought to a higher standard of efficiency in the work of fire extinguishing. This can be accomplished, of course, by the selection of men best fitted for the work, the scientific training of the members of the force, and the enforcement of better discipline than is at present maintained.

It was quite apparent that the members of the department do not exercise sufficiently to keep themselves physically equipped for the work of fire extinguishment. While scientific knowledge and training are very essential to efficiency in fire extinguishment, yet the physical condition of the firemen must always be kept up to the standard.

Because of the nature of a fireman's work, which leaves him with a large amount of unoccupied time, and no vigorous labor to engage his energies, special provision should be made to maintain a high physical standard among the force. This can best be done by setting-up exercises, drills and gymnasium work.

ORGANIZATION AND ADMINISTRATION

General Outline of Organization

The organization of the fire department is as follows:

For Administration.

Chief of department	1
Secretary	1
Stenographer	1
Record clerk	1
Messenger	1
Storekeeper	1
Caretakers	3

For Operation of the Fire Alarm System.

Superintendent	1
Assistant superintendents	2
Telegraph operators	3
Telephone operators	3
Linemen	2

For Fire Prevention and Fire Fighting.

Deputy chief	1
District chiefs	6

Captains of companies	38
Lieutenants of companies	34
Superintendent of engines	1
Engineers of steamers	9
Assistant engineers of steamers	10
Ladder men (firemen)	65
Pipe men (firemen)	87
Salvage men (firemen)	2
Drivers (fire apparatus)	49
Stablemen	2
Total employees of fire department	324

Administration

Fire Chief—Administrative and Executive Head.

The administrative and executive head of Toronto's fire department is the chief. His functions combine not only the control and direction of the uniformed force, but the business management of the department, as well. He is responsible for the discipline of the entire force. He makes all appointments, promotions, assignments and transfers, and personally hears all charges against members. He is in personal charge at all fires in the congested value district, and at all large fires throughout the city. With the city architect he personally inspects the erection of large signs, electric, metal and others, the installation of gasoline tanks and standpipes, and the plans for all theatres and moving picture shows, when licenses are issued. He is required to advise the city architect and the property commissioner upon the construction of new buildings, as to their safety from destruction by fire. He is required to administer the funds of the department, to supervise the purchase, inspection and delivery of all material supplied and apparatus used. He must inspect frequently all apparatus, and report upon its condition to the board of control. He personally purchases all horses needed for use in the department, and sells all condemned horses. As a trustee of the permanent relief fund, he is required personally to visit the homes of widows and children receiving benefits. He is required to attend the meetings of the board of control and the city property committee.

The numerous duties imposed upon the chief—some of them highly technical and exacting, and requiring special training and education—make it impossible for him to give to the uniformed force the time and attention necessary to produce the highest efficiency.

Lack of Control the Result.

An examination of the department proves that the chief lacks proper control over the uniformed force and the business administration. His duties are so complex and the demands upon his time so great, that no part of the work of the department receives adequate attention. Much of the chief's time is given to routine work which should be performed by subordinates.

Inspection work, such as any member of the department (and certainly any district chief) could perform, receives considerable attention from the chief. Much of this inspection work is not in the line of fire prevention, but is really a duplication of the work done by the city architect.

There is lacking in the chief's office such necessary information concerning the activities of the force as would establish accountability and make possible intelligent direction.

While improved methods in other divisions have kept pace with the city's growth in population, area and importance, and the fire department has grown larger, its weakened system of control has remained the same, and its business practices are no different from what they were many years ago.

Chief Should be Relieved of Administrative Duties.

The fire-fighting branch of the department should have the undivided attention of the chief, while the administrative side is of sufficient importance to warrant the entire attention of a separate administrative head. The rapid increase of the annual fire loss in the city of Toronto during the past twenty-six years from \$280,902.00 in 1886 to \$1,112,484.49 in 1912, and the increase of alarms in twenty-six years from 274 in 1886 to 1,670 in 1912, clearly indicates the need for closer supervision of the department and increased efficiency in fire prevention.

Appointment of Administrative Head Necessary.

Therefore it is recommended that the council create the position of fire commissioner, who shall serve as the administrative head of the department. The executive management should be placed with the chief of the department, who should have absolute control over the uniformed force and its activities, and be responsible to the commissioner. The duties of both the commissioner and the chief should be clearly defined in the by-laws.

The power of appointment, promotion and dismissal, subject to civil service rules and regulations, should be vested in the commissioner, while the power of assignment, transfer and detail should be vested in the chief.

By the appointment of a commissioner, the business management and the administrative side of the department could quickly be placed upon an efficient basis. The chief would then be free to devote his time to improving the discipline of the fire brigade. There should follow a general increase of efficiency. The new order would enable the chief of the department to organize and supervise a system of house-to-house inspection for fire prevention. It would bring the force and the chief into closer touch.

It is essential that the chief of the department, as its uniformed head, be free to attend the largest possible number of fires, not only to direct the work of the firemen, but to study improved methods of fire extinguishment, supervise their installation, and observe the results.

Organization of Fire Fighting Force

For purposes of administrative control, the city is divided into seven fire districts, each in charge of a district chief.

The force is divided into nine engine companies, seventeen hose companies, two chemical engine companies, one salvage company, one water tower company, two aerial truck companies, and nine truck companies. These companies are housed in twenty-seven halls.

The fire alarm and telegraph system is controlled through a central station, in a building of fireproof construction immediately adjoining fire headquarters.

The department is organized upon the approved plan in use in most large cities.

The following table shows, year by year for the past ten years, the city's population, total cost of maintaining and operating the fire department, per capita cost of the same, total number of men on the force, total number of runs, and insurance paid on fire loss.

Year.	Population	Appropria- tion	Cost per Capita	Total Force	Total No. of Runs	Total Insur- ance Loss.
1903	279,526	\$211,529	\$0.75	196	867	\$ 273,696
1904	293,395	241,644	.82	208	771	10,956,546
1905	305,244	272,033	.89	211	779	448,664
1906	323,801	288,131	.89	233	854	667,247
1907	355,726	299,299	.84	236	1,061	1,107,542
1908	365,923	315,699	.86	237	975	1,073,989
1909	402,567	352,344	.87	261	1,103	740,931
1910	386,205	386,205	.91	277	1,267	259,741
1911	443,751	438,754	.99	296	1,593	447,988
1912	475,296	571,365	1.20	323	1,670	1,112,484

Appointment. Training. Discipline. Promotion and Provision for Welfare of Employees

One of the principal subjects for consideration in the development of an efficient working force in any branch of the municipal service is that of personnel—the conditions affecting the appointment, discipline, promotion and welfare of employees.

Original Appointments

All original appointments are made by the chief. No competitive examination or test is conducted, and the chief is at liberty to appoint whom he will, without giving any reason for his selection or making any report concerning the manner in which he made his selection. With a view to making Toronto's fire department thoroughly efficient, the present arbitrary method of selecting men for service in the department should be abandoned.

Only Physical Qualification Considered.

Fire-fighting is no longer a mere matter of brute force. The use of complicated mechanical equipment and scientific standardization of methods of operation and control of fires makes technical training and skill of primary importance. Notwithstanding this fact, the only test applied to applicants for appointment to Toronto's fire force is a physical examination, and even this examination is not of a competitive character. No general or special educational qualifications and no special practical tests are required.

Lack of Character Investigation.

So far as the records of the department are concerned, there is nothing to show whether or not a character investigation of applicants is made. No written reports are made of any such investiga-

tions. The chief stated that whatever investigation is made he himself conducts, but he keeps no records of his findings.

Improved Application Blanks and Civil Service Plan of Procedure Urged.

Applicants for appointment are not furnished with special forms of application blanks. They merely write letters to the chief stating

- 1—Name
- 2—Address
- 3—Age
- 4—Occupation
- 5—Length of time in the country
- 6—Former employers
- 7—Present employer
- 8—Religion

Such letters are not alphabetically filed, but are kept in bundles in a drawer in the chief's desk.

It is recommended that each applicant be required to file an application in writing on a regularly provided printed form. The application blank should call for definite and complete information concerning the applicant's history and former employment. Four reputable citizens should vouch for the character of the applicant. His present employer should certify to the character of his work, length of service and habits during his employment.

The application should be in the form of an affidavit, and the statements contained therein should be sworn to by the applicant. There should appear upon this application sufficient information to form the basis of a thorough character investigation. Such an investigation should be made by either the civil service commission or the fire department, and the reports upon such an investigation should be in writing and be made a part of the records, either of the civil service commission or of the fire department. The application should be presented by the applicant in person and should receive a serial number when filed. Space should be provided upon the application blank, to be filled in by the medical officer who conducts the physical examination of the applicant. Thus in one document would be combined a complete history of the applicant.

All applicants should receive the physical examination before the mental test. This would save much time by disbarring from the mental test all who have failed to meet the minimum physical requirements.

Applicants Should not be Required to State their Religion.

Since the religion of an applicant does not affect his appointment, and since the rule requiring applicants to state their religion might carry the implication that religion does affect appointment, it is recommended that the practice of requiring applicants to state their religion be abandoned. If there is any reason why a record of the religion of members should be kept to facilitate the attendance of chaplains in times of danger, such a record should only be made after appointment.

Civil Service Examinations Recommended.

It is important that men be appointed to the fire department only because of special fitness for the work which they are to perform. It is essential to efficiency in fire prevention and fire-fighting that both physical and mental qualifications for membership in the fire department be of a high standard. While it may not be necessary for the applicant to possess an elaborate education or a specially trained mind, he must, however, have a mind capable of being trained and developed. To determine whether an applicant is so qualified mentally that he can be trained to do fire-fighting and fire prevention work, it is necessary that he be given an adequate mental examination and test.

To obtain none but the best fitted for Toronto's fire department, to prevent any possibility of favoritism in appointments, and to encourage intelligent, bright young men to become members of the fire department, it is recommended that the council adopt a by-law requiring that all appointments to the fire department be made as the result of a competitive civil service examination, to be conducted by the civil service commission, proposed elsewhere in this report.

Physical Examination Should be Competitive.

In addition to the mental test, every applicant should receive not only a thorough physical examination, but also a rating for such examination upon a competitive basis. Under the present system of conducting physical examinations, the only requirement is that the applicant shall be in good health and meet the standards of physique demanded by the examining physician.

Vacancies Should be Advertised.

When vacancies in the fire department exist and an examination is about to be held, an advertisement should be inserted in the local papers making announcement of the number of places to be filled, the date of examination and the qualifications required for the position of fireman. Examinations should be held at least once a year.

Educational Test.

The educational test for an applicant who has passed his physical examination should consist first of an examination in writing, reading and arithmetic. The applicant should also be tested on his general knowledge of the city, location of streets, street car lines, fire houses, laws and ordinances governing fires and fire control, and civics. It should be determined whether or not he has an intelligent understanding of the duties of a fireman. The primary object of these examinations should be to test the mental ability of the applicant to profit from training and to become an able fireman, rather than to test his educational qualifications.

Examination papers should not have the name of the candidate upon them, but should be designated by numbers.

Preparation of Eligible Lists Urged.

As the result of the ratings received by the candidates in their physical and mental examinations, an eligible civil service list should be prepared. The name of the candidate receiving the highest percentage in the examination should be placed at the head of the list, the one receiving the second highest rate should be second, etc.

Appointments from this list should be made in the order in which they appear thereon, and no man's name should be skipped, except when he shall have declined the appointment or does not respond within three days after notification, or when the character investigation proves him unfit for appointment. In any case, the chief of the fire department should be required to report in writing his reasons for appointing out of the regular order. No eligible list should remain in force for more than one year.

Department Should Have Photographs of all Men Appointed.

For purposes of identification in the event of death at fires, each man appointed should be required to provide the department, at the time of appointment, with a recent photograph of himself.

Training and Discipline of Employees

While general educational and physical tests are sufficient for original appointment, the question of retention or permanent employment and promotion should be considered in relation to experience or tests of special fitness. To this end a period of probation is provided for; to this end also discipline is administered; to this end special training should be provided.

Probationary Period Too Short.

The rules of the department prescribe that the probationary period shall be only three months. However, the chief of the department has fixed the probationary term at six months, although the rules have not been officially amended. The practice has been for the district chief and captain to report orally upon the efficiency of recruits, with the result that the department is without any written record concerning the probationary period of a fireman.

It is recommended that the rules of the department be amended so as to make the probationary period six months instead of three, and that district chiefs and captains be required to report in writing, stating definitely their opinions as to the advisability of permanently appointing recruits. Such reports should be based on the efficiency or non-efficiency of the recruits, and should be made permanent records of the department.

Present Method of Training Firemen Inadequate.

The fire department does not maintain a training school for firemen, nor does it provide any adequate method of equipping the men for their work. When a fireman is appointed, he is immediately assigned to a fire hall, and the training he receives consists only of instructions given by other members of the company and occasional drills by the captains. While the men attached to companies in the congested value district have an opportunity to gain experience in fire-fighting, because of the larger number of runs, firemen assigned to the suburban districts gain very little experience and almost no scientific training.

It is thus probably true that a fireman who has had several years' experience with a suburban hose company, and is transferred to the congested value district, is only slightly better fitted for his new work than a recently appointed fireman.

It is now well understood by fire experts that something more is required of an efficient fireman than a good physique and the ability to "eat smoke". Special training is required at every step in a fireman's work. But, since methods of fire control and extinguishing have practically been standardized, the training of men to put out fires is no longer a difficult matter, and its need is no longer questioned.

Even the ability to extinguish fires promptly and with a minimum loss is not all that is necessary to make an efficient fireman. He

should also be specially trained to prevent fires by careful inspection, and should be familiar with every modern requirement for adequate fire prevention.

The absence of scientific training is one of the chief defects of Toronto's fire department. Lack of training means lack of discipline, and lack of discipline means lack of efficiency. Such a resulting lack of efficiency was clearly noted when the firemen were observed at work.

Training School Should be Established at Once.

The council should immediately provide for the establishment of a training school for firemen. This school should conduct courses, not only for newly appointed men, but also for present members of the force and officers. The courses of study should include:

1—Practical instruction in the following:

- a—Connecting lines of hose;
- b—Use of different sizes of hose;
- c—Use of different nozzles;
- d—Stretching different lines of hose through buildings and up the exterior to the roof;
- e—Skillful handling of hose to secure the maximum efficiency of the stream and to reduce loss from bursting hose;
- f—Use of different couplings and connections;
- g—Handling of ladders, including climbing and scaling ladders;
- h—Handling and using of hooks, picks, door-openers and wire cutters;
- i—Emergency repairs to hose (use of jackets);
- j—Tying of knots used in the handling of ladders, lines of hose and other equipment;
- k—Laws and ordinances concerning fire;
- l—Building by-laws;
- m—Taking out broken links of hose already stretched on the outside of buildings;
- n—Use of chemical tanks;
- o—Use of fire helmets, life belts and life nets.

2—Administration.

- a—Discipline (respect for authority);
- b—Reports and records;
- c—Responsibility for city property;
- d—Rules and regulations.

3—Physical Drill.

- a—Setting up exercises;
- b—Physical appearance.

4—Lectures on the following:

- a—Building by-laws;
- b—Dangerous fires in general;
- c—Precautions to be taken in emptying burning buildings;
- d—General fire-fighting;
- e—Care of apparatus and equipment;
- f—Combustibles and explosives;
- g—Sprinklers and standpipes;
- h—Conservation of property in burning buildings;
- i—Auxiliary fire appliances, including special additional appliances;
- j—Water pressure systems (fire hydrants);
- k—Mains;
- l—Different building constructions;
- m—Duties of firemen in public theatres and places of public assembly;
- n—Fire prevention;
- o—Fire prevention law and by-laws;
- p—Records and reports;
- q—Hygiene and first aid to the injured;
- r—General discipline.

The period of instruction in the school for recruits should not be less than three weeks. When not in attendance at school, recruits should be required to perform actual service with their companies. Provision should be made to have the present members of the force properly instructed. For this purpose a plan should be devised whereby the present fire hall drill may be improved. Group drills should also be conducted at a central school.

The first step should be to furnish adequate instruction for the officers, so that they would be qualified to conduct drills efficiently in their own fire halls. Each fire company should be given one whole day's preliminary instruction at the school, during which time provision should be made for the assigning of firemen to cover the district thus depleted. The rules should provide also that the officers co-operate with each other, so that no two adjoining stations would select the same hour in which to drill the men.

The person selected to manage the Toronto fire training school should be permitted to visit the training schools already in operation in New York and Philadelphia.

Promotions

Efficiency Demands Enthusiasm and Ambition.

Efficiency in fire-fighting depends in a large degree upon the enthusiasm and ambition of the members of the force. A system which affords no opportunity for equitable promotions based upon merit, and merit alone, cannot be expected to inspire men with ambition and enthusiasm.

The contented force is the efficient force, but no force is contented if the members are not given an opportunity to compete for promotion.

Promotion should be based on faithful service and merit. Toronto has no promotion system in the fire department. All promotions are made by the chief, without test or competitive examination. Although the chief, in exercising his discretion in making promotions, may use great care in the matter of selecting the most efficient men, there is, nevertheless, a natural feeling of discontent among the members of the force, who either were not considered, or who were considered and not promoted. Such discontent is conducive neither to good discipline nor to a feeling of respect for the officers so promoted on the part of those left behind.

Efficiency Ratings and Tests as Basis for Promotion.

It is, therefore, recommended that promotion in the fire department be made only as a result of a rating based on efficiency records and special service tests and examinations.

At present no efficiency records of members of the force are maintained, and reports upon the efficiency of individual members are made orally by superior officers, and no special service tests or examinations are made for the purpose of establishing efficiency ratings. For purposes of giving a rating upon efficiency, it is recommended that individual efficiency records be established at once. In rating members of the force a prescribed weight should be given seniority. Specially printed forms should be provided upon which to enter a daily record of the facts upon which the work factors of rating shall be based. These records should be kept by the district chiefs and submitted each month to the chief.

Educational and Physical Tests for Promotion Should be Held.

The educational and physical tests for promotion should consist of a written test on the work requirements of the department, periodical physical tests and drills. The written test should consist of an examination in the duties and technical requirements of the rank for which an examination is being held, such as on the laws and ordinances of fire regulations and prevention, on fire prevention methods, report writing, and on knowledge of fire extinguishing methods in use in other cities and countries. The drill examination should consist of a test in the handling of apparatus and the use of fire equipment.

Promotions Should be Made from Eligible List.

As a result of the competitive promotion examination, an eligible list should be prepared and the promotion procedure should be as follows: When a vacancy exists the civil service commission should be requested to certify the first three names on the eligible list. From these the chief should be required to appoint one. In order to encourage fair play in promotions, and to avoid "outside" interference, no name should be skipped on the eligible list unless for a good and definite reason, which reason should be stipulated in detail and made a part of a record of the department.

Punishment of Delinquent Firemen**Discipline of Employees—Inadequate Records.**

Because of the absence of proper records, it was impossible to make any comprehensive study of the delinquencies of the members of the force. The rules of the department do not prescribe any form of procedure for conducting the trial of delinquent members, and no regular procedure is followed.

No forms are provided upon which to file charges. Charges are made in an informal memorandum to the chief, which is not preserved after the cases are disposed of, consequently no adequate records of the charges and specifications made against members of the force are maintained. The present practice is for the chief to summon the accused fireman to his office, and there conduct an informal hearing, of which no record is made, except in cases where the accused is punished.

Of the many cases where the complaint against the fireman was dismissed, or the accused "let off with a reprimand", there are no records. Of the cases where the accused has been dismissed from the

force, forced to resign, or had his salary reduced, the only record maintained is an entry in a book called the "complaint book". This entry the chief himself makes in his own handwriting, and without any regular form or standard of detail. An examination of these entries proved them to be of no value whatever in an effort to analyze the causes of dismissals or involuntary resignations. Many of the entries contained no date except the year. The following entries regarding violations of departmental rules and punishment therefor are typical:

- 1900—For a third offense of a violation of the rules and regulations of the department, has been suspended from pay and duty, salary for the time suspended to be deducted, amounting to \$49.94. In addition to which his salary for June, July, August, September and October has been reduced by \$10.00 per month.
- 1900—Suspended for being the worse of liquor, salary for the time suspended being deducted, amounting to \$33.64.
- 1905—For being under the influence of liquor and assaulting chief—was reduced from the rank of foreman to that of first-class fireman.
- 1905—For fighting and use of improper language while on duty, salary for the month of November reduced \$10.00.
- 1907—For being under the influence of liquor while on duty your salary for the months of August and September is reduced \$5.00 per month.
- 1908—For frequent violations of the rules and regulations of the department, will be given until April 1st next to secure other employment, on which date your services as a member of this department will cease.
- 1910—Discharged for improper conduct.
- 1910—For intoxication and improper conduct, ordered to resign.
- 1910—For absenting himself without leave, dismissed.
- 1910—For absenting himself without leave, suspended and salary deducted during suspension, and a further reduction in salary of \$15.00 a month for April, total reduction \$20.55.
- 1913—For a repeated flagrant violation of the rules and regulations of the department, reduced from lieutenant to the rank of first-class fireman.

Thus it will be seen that it would be impossible to secure from these records any information concerning the character of the violations, which would be of value in studying the delinquencies of the force. For detailed information in connection with these cases the chief depends entirely upon his memory. Neither the statements of the witnesses, of the accused, nor of the complainant, are kept in writing, and no detailed and accurate minutes of the hearings are taken.

Method of Trying Delinquent Firemen Should be Prescribed by Council.

No fireman should be removed from the force except for cause. To avoid the abuse of power or "outside" interference, it is recommended that council adopt a by-law prohibiting the removal of a fireman without cause, or the reducing of his salary without affording him a just and equitable hearing.

The by-law should provide a plan of procedure governing the trial of delinquent firemen. This should make provision for serving written charges upon the accused fireman. He should be given ample time in which to file an answer, and an opportunity to defend himself at a public hearing, with the introduction of such evidence as would tend to prove his innocence or explain his delinquency. Such trial should be held by the chief, or by a deputy chief designated by him. All such hearings should be stenographically reported, and a proper record maintained.

Present Forms of Punishment—Fines, Suspension and Removal—Should be Revised.

Under the present law the chief of the department has power to dismiss from the force any fireman or officer thereof. He may suspend from duty or reduce the pay of any member of the force during any period he desires. No right of appeal is provided in the by-laws. While the by-laws do not empower the chief to fine delinquent members of the force, the practice is, however, to reduce the salary during a definite period, which, in effect, is a fine.

It is, therefore, recommended that the by-laws be amended to provide for a system of fining, after a fair and equitable trial. Provision should also be made for a merit and demerit system, affording a means of punishing firemen for delinquencies of a character which would not warrant the severity of a fine. Demerits should mitigate

against the fireman's chances of promotion, unless they are equalized by a merit mark for special efficiency. The power of summary dismissal without a trial should be removed.

Reinstatement of Firemen

The chief of the department has the power to reappoint or reinstate any dismissed member of the force. An analysis of the records shows that since 1889 there have been but five dismissals from the department. The policy of the present chief has been to request the resignation of delinquent members rather than to dismiss them. It is, therefore, impossible to determine from the records the actual number of firemen who left the department as a result of charges having been filed against them. It is likewise impossible to determine the number of reinstatements of dismissed firemen, or firemen who left the department under charges.

That reinstatements are made by the chief is evidenced, however, by an examination of the few records available. A fireman whose salary was but \$700 per year, and whose record indicated that he was addicted to the use of liquor and frequently placed upon charges and fined, was dismissed in 1902. The present chief, in 1910, reappointed the dismissed fireman, as an assistant engineer, with a salary of \$1,050, his age at the time of reappointment being forty-one years. (The rank to which he was appointed, however, does not carry with it any benefit in the pension fund.)

Because of the failure to maintain proper records in connection with dismissals and reinstatements, it is not possible to determine the actual number of reinstatements as distinguished from reappointments, or the justice of such reinstatements or reappointments. The principal difficulty is that the causes of dismissals or forced resignations cannot be fully determined from the records.

Chief Should Not Have Power of Reinstatement.

While no fireman should be removed from the force without good and just cause and in the interest of discipline, it is equally important that no dismissed fireman shall be returned to duty unless he can prove that his dismissal was not justified in the first place. Council should amend the by-law so as to provide that a dismissed fireman shall not be reinstated except upon a rehearing of his charges before the board of control, at which hearing he shall be restricted to submitting proof of error in the original trial or a violation of his rights

as a defendant, but shall not be permitted to review questions of fact. The power to reinstate should be vested in the board of control, and not in the chief of the department.

Provision for Welfare of Employees

Among the things which make for efficiency of service are the provisions made for the health, comfort and welfare of employees—including a fair recognition of merit and proper compensation for work. The question of salaries and grades is not taken up in this report.

Surgeons.

There is no department surgeon. Applicants for the force, and applicants for retirement with a pension, are examined by the city medical officer.

Firemen desiring to be excused upon sick leave, although paid full time while on sick leave, are not examined by any physician representing the city. This may, in a way, account for the unusually high percentage of time lost due to illness.

In the year 1912, 1,469 days, or an average of over four and one-half days per man, were lost to the city by sickness among members of the force—the total time cost to the city being \$3,921.42. In 1911, 881 days, or an average of almost three days per man, were lost to the city by sickness among members of the force—the total time cost to the city being \$4,631.41.

According to the present rules, members of the force excused from duty upon sick leave are not required to produce a doctor's certificate. In some instances, firemen procure a certificate from their private physicians. It is recommended that, except in cases where firemen are injured in the performance of their duty, the city pay firemen for half time while excused on sick leave, and that the rules provide that a fireman becoming ill and desiring to be excused upon sick leave shall report either to the city medical officer, or to some practising physician to be designated by the city as a department surgeon. If a fireman is too ill to report at the office of the physician, the physician should be required to visit his home.

Printed report forms should be provided the city medical officer, or the department surgeon, and he should be required to make a written report upon each case examined, state the probable cause of illness, the diagnosis and the prognosis. When the fireman is suffi-

ciently well to return to duty, the physician should make a written report to the department, both of which reports should become permanent records.

Rewards for Heroic Service.

Members of the fire department performing distinguished acts of bravery receive no departmental recognition. The rules and regulations do not provide any means whereby the chief can award such recognition. The only provision made is that council may reward firemen in the same manner as other persons.

Physical courage is one of the chief qualifications of a fireman. There are times in the service of every fireman when he is called upon to risk his own life in an effort to rescue others. No fireman who meets such a test with honor should go unrewarded.

Distinguished acts of bravery should receive special departmental recognition. To make possible such recognition there should be established a board of honor, to consist of the chief, the deputy chief and one district chief. The board should meet once a year, and consider all cases of heroic acts referred to it since its last meeting. The firemen who, in the opinion of the members of the board, have performed the most distinguished acts of bravery should receive a gold medal, officially known as "the department medal". Other members of the force performing less conspicuous acts of bravery should be awarded honorable mention.

The presentation of the department gold medal should be made with fitting ceremonies by the mayor. The fireman to whom a department gold medal has been awarded should be authorized to wear a small gold star on the sleeve of his dress coat, while a fireman receiving honorable mention should be authorized to wear a silver star. The awards of the board of honor should be published to the entire force.

Pensions

Provision is made for the pensioning of firemen in By-law No. 2804. This by-law creates a pension fund, and provides for its administration and control. The fund is administered by a pension fund committee, consisting of "one officer, one captain and three members of the fire department entitled to participate in the said fund". This committee must be elected annually by the active employees of the city fire department. The chief of the department is a member ex-officio of the committee, while the present secretary

of the fire department is the secretary of the pension fund. All of the moneys of the fund are controlled by the city treasurer, and are subject to the annual audit of the city auditors.

Method of Financing Unsound.

Under the present plan it is impossible to determine the total cost of a fireman's services, per year of active service. The annual cost of active service should be considered as composed of two items:

- a—Salary received by the employee during current year of active service..
- b—Proportionate amount of future pension earned by the employee by his active service during current year.

This current annual cost of the services of a fireman may be covered by setting aside each year, according to the age of the employee, a definite amount, determined by actuarial tables, which, invested at interest, will be sufficient to meet the pension payments to this employee at the probable period of his retirement. In other words, "a reserve plan" of funding liabilities as they are incurred may be adopted. On the other hand, a "cash disbursement plan" may be adopted, which will require no reserve, but that obligations be paid as they mature. This latter plan will cost the city, or the ones who must provide the funds, not less than twice as much as the former plan, since the income from investment of the reserve will be eliminated.

Interest Factor Ignored.

Assuming that it was the intent to adopt a reserve plan, the present scheme ignores the interest factor. Assuming that it was the intent to adopt a cash disbursement plan—i.e., to provide cash with which to pay pensions as they became due, then the city must look forward to meeting a fast increasing debt—one which is in the nature of liabilities incurred by the past administrations that becomes a fixed charge for past services. For either purpose, an actuarial valuation or appraisalment of the fund requirements should be made, to enable officers to set aside the proper "reserves for investments" on the one hand, or determine the future encumbrances on the city's taxables on the other; for the cash disbursement plan operates as an encumbrance on the future revenues of the city, unless some other method is provided for fund revenues.

Operating a Reserve Plan.

The following factors must be considered in determining the cost of pensions and adequacy of contributions in the reserve plan—the specified conditions being assumed for purpose of illustration:

Retirement age, 55.

Expectation of life, 14 years.

Pension for life at half of \$1,100, or \$550 per annum.

Total future payments, \$7,700 (a).

Value of future payments at date of retirement (three per cent. compound interest), \$6,213 (b).

Contribution necessary:

(a) If contributions are not funded at interest

Employee entering at age of 25, serving 30 years before retirement;

Employee to accumulate \$7,700 during 30 years of service;

Employee to contribute annually $\$7,700 \div 30 = \$256.67$;

Employee to contribute annual 23.33 per cent. of salary if same is uniform at \$1,100 for entire service, and more if it is less in the first five years of service.

(b) If contributions are set aside each year and cumulated at interest

Employee to accumulate \$6,213;

Employee to contribute annually, $\$6,213 \div 49.003 = \$126.78$;

Employee to contribute annually 11.53 per cent. of salary if same is uniform at \$1,100 for entire service, and more if it is less in the first five years.

The Importance of a Careful Appraisal Will be Seen

By Reference to Present Conditions.

1—Employee's deductions 5.00%

2—\$8,750, city's contributions (assuming that payroll of 323 men at \$880 per man is \$284,240) form at present 3.04%
(If additions are made to the force, or if salary increases are made, this \$8,750 will provide a lesser percentage per man).

Total present contributions from the two above indicated sources 8.04%

Necessary under "reserve plan" 11.53%

Necessary under present "cash disbursement" plan 23.33%

Under present "cash disbursement plan" it would be necessary to provide an annual income of 23.33 per cent. of the payroll (\$284,240), or \$66,313. The income in 1912 was \$30,714.48.

Under "reserve plan" it would be necessary to provide for annually setting aside and investing at 3 per cent. compound interest 11.53 per cent. of payroll, or **\$32,713**. The income in 1912 was **\$30,714.48**.

Disability Pensions Not Taken Into Account.

The above calculations do not take into account the possibility of early retirement for life under the disability provision. This feature, of necessity, increases the costliness of the plan, makes the above calculations conservative, and underestimates the state of insolvency of the fund. No estimate of the cost of disability pensions can be made, since such pensions are not based on age. It would seem that unless the administration of the fund is placed in absolutely disinterested hands, half-pay for life in case of disability, after fifteen years of service, will become the most frequently availed-of form of separation from service, at an age which would make the pensions almost prohibitive in cost.

During the first years of the operation of an unsound plan, the fund is able not only to meet pension obligations as they mature, but may accumulate a considerable surplus. The contributions which should be set aside currently for the payment of future pensions are used in the payment of present pensions to old employees. When employees begin to grow old, and retire in increasing numbers, then the surplus is soon used up, and the fund is in a state of absolute bankruptcy, unless the city comes forward to meet the deficit. On a reserve plan, the present system has not been long enough in existence to be in trouble. As a matter of fact, the annual receipts exceed the annual expenditures, and the fund has a surplus of \$187,743.84 (on December 31st, 1912). It should be said that unless the administration of the pension provisions grows lax and allows abuses of the disability clause, the fund will not know that it is in trouble for probably fifteen to twenty years to come.

Below are the annual receipts and disbursements of the fund:

Annual Receipts.	Annual Expenditures.
1902— \$5,705.92	1902—\$6,496.29
1903— \$8,409.78	1903—\$1,030.02
1904— \$9,488.67	1904—\$3,286.58
1905— \$9,701.87	1905—\$3,613.48
1906—\$11,125.74	1906—\$1,976.72
1907—\$20,780.96 (city starts to contribute \$8,750 annually)	1907—\$1,450.00

1908—\$21,816.21	1908—\$1,572.28
1909—\$24,003.11	1909—\$2,689.47
1910—\$25,444.98	1910—\$4,426.59
1911—\$27,677.29	1911—\$2,719.22
1912—\$30,714.48	1912—\$4,027.72

Service Pensions.

Any member of the fire department may retire at the age of fifty-five years, and be entitled to receive an annual compensation for life of one-half the salary he was receiving at the age of fifty-five, but no member shall be compelled to retire at such age, if, in the opinion of the chief of the department and the medical officer, such member is still qualified to perform his duty. Provision is made that in case any member of the force was of the age of fifty-five years or over on the 9th of December, 1907, such annual compensation shall be but one-half the salary received by such member at that date, regardless of future promotions or increase in salary.

FIRE FIGHTING EQUIPMENT

The fire-fighting equipment is of five different kinds, viz.: fire halls and mechanical apparatus, horses, alarm and telegraph, maps and charts for use in planning and directing work.

Fire Halls and Mechanical Apparatus

Because of the limited time in which the survey had to be conducted, no extended examination or technical inspection of the apparatus of the department was made, but several fire halls were inspected and the apparatus of the department observed while in use at fires.

The inspection of houses showed a lack of standardization in construction and planning.

While in the construction of the new houses the comfort of the members of the force has been given considerable attention, some of the old houses visited are in very poor sanitary condition.

The city architect should be instructed to provide for the standardization of fire halls.

It is recommended that attention be given in planning for the standardization of construction of fire houses, providing for the following:

- 1—Spacious dormitories with sufficient windows.
- 2—A steel locker for each members of the company, arranged so as to be easy to clean and keep sanitary.

- 3—Properly equipped gymnasium.
- 4—Ample shower baths on the same floor with the dormitories and gymnasium.
- 5—Lounging rooms or social halls, particularly spacious, so as to allow for installing a pool and billiard table and a bookcase.
- 6—All doors so arranged as to open without interfering with the egress of the firemen in responding to an alarm. In most cases the doors should open outward.
- 7—Hose towers of sufficient height to provide for the hanging of the hose over a drum, so as to provide for proper drying of the canvas surface, and keeping the rubber moist by preventing a circulation of air through the hose.
- 8—An adequate hot water supply.
- 9—Automatic trap doors around poles in the dormitories.

No Instrument for Melting Steel Bars.

The department does not own at present any device for the melting of steel bars, and it is recommended that the trucks be equipped with burners, consisting of oxygen and acetylene gas, for this purpose.

During the Equitable Life Insurance Building fire in New York last winter, it took one and a half hours of arduous labor to sever two steel bars, to effect the rescue of a man imprisoned back of them, because of the absence of such burners. Shortly after this fire, such burners were invented and the New York fire department equipped with them.

No Flare Torches for Use at Night Fires.

The equipment of the department does not include a searchlight engine, nor flare torches for use at night fires. Thus the firemen are compelled to work with ordinary fire lanterns. Firemen at night fires are greatly handicapped in their work because of the absence of adequate light. Council should provide an appropriation for the purchase of a searchlight engine, or detached searchlights which could be attached to the ordinary electric light pole, for use at night fires.

Acetylene flare torches, such as are in use in most large cities, should be supplied to the department. These torches are comparatively inexpensive.

Helmets in Bad Condition.

A most important part of the equipment of a fireman is the fire helmet. The helmet is not only a protection to the head against injury,

but is frequently an important tool for breaking windows and other work at fires. A great many helmets were observed in use which were so badly worn and dilapidated as to make them of no value, either as a protection to the head, or an aid to the fireman as a tool.

Horses

Good, vigorous, young horses, well adapted to the work, are among the most needful parts of fire-fighting equipment. Having been obtained, their care is an important part of management. This suggests the need for a horse superintendent.

No Superintendent of Horses.

All the horses in the department, of which there are 119, are purchased by the chief. He, however, cannot take the time to see that they are adequately cared for. There is no superintendent, nor any one person, who is directly responsible for their keeping. The captain of each fire company is held responsible for the horses assigned to his fire hall. There is no department veterinarian, but practising veterinarians are retained, from time to time, being paid a fee for each visit.

The shoeing of horses is done by outside blacksmiths, as the department does not maintain its own blacksmiths or forges. The veterinarians, however, advise as to the type of shoe to be used. There are no health records of the horses kept. The stalls in the fire halls visited were clean and orderly, but some of the horses observed did not show the best of care.

Council should create the position of superintendent of horses, whose function it should be to assign the horses, supervise their care, and instruct the drivers as to caring for the horses.

Council should also establish a division of horseshoeing, under the supervision of the superintendent of horses. A practical horseshoer should be appointed through civil service examination, and a traveling forge should be purchased. Wherever a department horseshoeing division has been established in fire departments, a great saving to the city has resulted. In the City of New York, more than \$40,000 was saved in one year by the fire department shoeing its own horses. The city of Philadelphia, Pa., which is experimenting with a fire department horseshoeing division, already reports a saving.

It is recommended that a horse superintendent be appointed, and that he be given absolute power, subject to the approval of the chief of the department, in all matters pertaining to the distribution, care and management of the horses.

Fire Alarm Telegraph System

There are 500 miles of overhead wires and cables in connection with the fire alarm telegraph system.

All Wires Overhead.

With the exception of about 1,200 feet of wiring at the Exhibition Grounds, and the entrance cables at fire headquarters, all wires are overhead. The use of overhead wires in the congested parts of large cities has long since been condemned. It is not at all uncommon for firemen, when at work at fires in the congested value districts, to cut down overhead wires, thus crippling the fire alarm system for a considerable time. Frequently the breaking of one of these wires results in throwing out of business from 50 to 60 fire alarm boxes throughout the city.

Danger to City from Present System.

During the fire at the Grand Opera Hotel, on the 29th of March, 1913, it was necessary for the firemen to cut down the overhead wires immediately in front of that building, and circuits three and six were "cut out" by the firemen, resulting in putting out of business fifty-three fire alarm boxes for a period of one hour. On April 3rd, at the Front Street fire, the entire high pressure circuits were cut out for more than one hour. There are many instances on record where fire alarm telegraph service in congested value districts has been completely demoralized because of this necessary practice of cutting down overhead wires.

Disturbance from Hydro-Electric Wires.

The wires are carried on the Hydro-Electric poles, or the poles of the telephone and telegraph companies. The telephone and telegraph companies contend that the city's right on their poles is in question. The Toronto Hydro-Electric Commission has not set aside a definite part of its poles for the fire department wires, and the result is that the high tension wires of the Hydro system, by coming in close contact with the fire alarm wires (because the linemen have either disturbed the fire alarm wires, or have placed the Hydro tension wires too close to them), cause considerable wire trouble. The fire alarm system is most disturbed, and wire trouble most frequently experienced, because linemen for the telephone and telegraph companies, unfamiliar with the location of the fire alarm wires on their poles, invariably disturb the fire department wires. No part of the fire

department is more important, and demands more attention, than the fire alarm telegraph division, and nothing is conducive to greater fire loss than inefficiency of the telegraph system.

Need for Training.

While it is important, in the highest degree, that firemen shall be properly trained for their work, and that fire prevention laws shall be rigidly enforced, all efforts in these directions fail if the fire alarm telegraph system breaks down. In the sending and receiving of fire alarms, time must be measured by fractions of seconds. A minute's delay in the sending and receiving of an alarm may mean a disaster. Since this is true, it should not be difficult to realize the danger of continuing overhead wires in the congested value district of Toronto, especially since the telegraph system of an entire section of the city has frequently been completely stopped because of the necessity to tear down overhead wires.

False Economy.

It is false economy to continue the use of overhead wires, when it is extremely probable that their continuance may some day cost not only tremendous loss of property, but even human lives. In the annual report of the fire department for the year 1912, the chief says:

"For the past fourteen years I have been annually calling attention of the committee on fire and light, and city council, to the obstruction and delay our department experiences, and also to the serious danger to both life and property, occasioned by the overhead wires in the city, especially in the congested districts, and would again earnestly request that some action be taken at once to have this danger removed."

Failure to Heed Recommendation.

No recommendation that could be made in this report, if followed, would be of more importance to the city of Toronto than the recommendation to place the wires of the fire alarm telegraph system underground. Council should at once consider ways and means of appropriating necessary funds to begin the work of placing all the fire alarm wires, at least in the congested value districts of the city, underground. All of the mains of the Hydro system in the congested value district are laid in underground conduits. When these mains were being laid, the fire department urged that one duct be reserved for the wires of the department. For some reason this request was denied. It would be well to consider at this time the possibility of using the conduits controlled by the Hydro commission for carrying the fire alarm telegraph wires.

The operators in charge of the telegraph system, although electricians, had never performed any service in connection with the new style of switchboard in use in the department before appointment to their present position. In order that they may become proficient in the handling of this board, which is essential to the speedy delivery of alarms, they should be given adequate instruction in the use and maintenance of the board.

Inadequacy of Records.

The fire alarm telegraph division is supervised by a superintendent, who has been in charge of this work for more than 19 years. There are three operators in control of the fire alarm system, and three telephone operators in charge of the telephone switchboard. While the superintendent is an experienced electrician, and familiar with his work, he has, like the chief of the department, failed to install proper and necessary records in connection with the operation of his branch of the department. Without such records, it is hardly possible to determine the efficiency of this division. The records of the fire alarm telegraph system at present consist of the following:

- 1—Log book—maintained by the operators of the Gamwell board. This book is supposed to contain a chronological record of the work of the operators during each twenty-four hours. It is not indexed, and events are entered in an unintelligent manner, there being no rules covering the manner of making entries.
- 2—Alarm records—In this book is kept a record of the alarms received. The printed headings of the book call for the following information: Month, day, year, box or still, hose company, hook and ladder, engine; time of alarm, A.M. or P.M.; struck out, A.M. or P.M.; location of fire. Under the heading "location of fire," the operators only insert the location of fires to which apparatus is sent upon a still or telephone alarm. In such case, under the heading "hose company, hook and ladder, and engine," the operators insert the number of the respective companies notified, but not the record of the number of men detailed. Thus, in a case where one man would be sent from a fire house to location reported to determine whether there was a fire, the record would appear to show that the entire company responded to the call.
- 3—Log book—showing operations of linemen and distribution of supplies. This book purports to show activities of the linemen, and a record of wire trouble. It fails, however, to show all of the wire

trouble, because only such wire trouble as would involve a repair shop is recorded. No accurate description of the wire trouble is entered.

The only clue to the nature of the wire trouble obtainable from this record is afforded by the kind of materials used in the making of the repair. There is no monthly recapitulation of the wire trouble, and there are no definite records concerning it. This book is kept by the superintendent, and the entries made in it are based upon oral reports of linemen. There are no rules of the department governing the type of entries, or the manner in which they shall be made.

4—Daily water report.—This is a report kept by the telephone operators, upon which are recorded instructions received over the telephone (from the department of works) as to the shutting off of water in certain localities. The operators do not record the time the message was received, nor the name of the persons transmitting the message, but report merely the statement that the water in a certain street will be shut off between certain hours. No regular forms are provided for this report, and no notice is filed with the chief of the department, the procedure being for the operator to call the fire stations in the vicinity concerned and inform them of the message received from the water department. These sheets are filed away chronologically in the telegraph room by the operators. They are kept in an informal manner, and instead of being a regular record of the department, form only an informal memorandum. Thus it is possible, under this system, for water to be shut off in various parts of the city without the knowledge of the chief or the deputy chiefs of the department.

5—A slate upon which is entered the fire service report.—The practice is for the operator to enter upon this slate the fire service report telephoned to him by the captains or district chiefs. Each morning the slate is sent to the storekeeper. Either he, or his clerk, copies the record of the fire service reports from the slate into a book.

It may easily be seen, from what has been said, that the telegraph division is without a proper system of records and reports. No record whatever is made of incoming or outgoing telephone calls, and there are no rules governing the procedure in connection with the management of this division. The hours of the operators are fixed by themselves.

Operators Determine Amount of Apparatus on Still Alarms.

On still alarms, the telephone operator is the sole judge of the amount of apparatus to be dispatched. An examination of an operator showed that he had no fixed rule in such cases, but used his "own discretion", basing his conclusion upon the character of information received over the telephone. He stated, however, that there was an old rule of the department that, upon receipt of a still alarm, three hose wagons, one truck and one engine company be notified to attend the fire, but that the operators did not follow this rule, since they felt they should use "intelligent discretion", based upon the information as to the size of the fire, received from the person telephoning. The result of such a practice is that if a person observes a fire in a house and "pulls the box", a definite amount of apparatus is turned out, as provided on the running card. On the other hand, if the same person, instead of "pulling the box", telephones to headquarters, the amount of apparatus that responds to the telephone call is determined by the telephone operator, and is, of course, different from the amount of apparatus which would respond to a box call. No running card is kept at the telephone switchboard for the information of the operators.

Chief Should Receive Daily Report.

The chief of the department at present receives no reports whatever from the superintendent of the telegraph division. The rules should require that the superintendent file a daily report, showing the activities of his subordinates and the operations of the division for the preceding 24 hours. The report should furnish the chief with the following information:

- 1—Time of receipt, and box number of each alarm.
- 2—Time of receipt of each telephone or still alarm and the name of the person sending such alarm.
- 3—Time each fire was struck out.
- 4—Number of the alarm.
- 5—Number of alarms received up to the same date of the preceding year.
- 6—Number of telephone messages received and sent out.
- 7—Number of complaints received over the telephone.
- 8—Number and character of complaints received concerning the telegraph system.
- 9—Number and character of complaints of wire trouble.
- 10—Number of employees present.
- 11—Number and names of those absent and the cause of their absence.
- 12—Time tests which were made and the result of the tests.

- 13—Number of boxes inspected during the day.
- 14—Number found perfect.
- 15—Number found defective.
- 16—Number repaired.
- 17—Amount of new wire, in feet, used during the twenty-four hours.
- 18—Amount of wire, in feet, condemned.
- 19—Amount of wire repaired.
- 20—Amount and description of new supplies received.
- 21—Amount and description of supplies used.
- 22—Remarks.

Under the heading "Remarks", the superintendent should report to the chief any unusual occurrences in connection with the operations of his division during the day, and likewise any recommendations concerning improvements in the system which he may desire to effect or suggest.

Water Reports.

The chief should provide a printed form for water reports received by the operators from the department of works. This report should contain printed headings calling for the following information:

Date, day of the week.....month.....year.....
Time of receipt.
By whom telephoned.
Time and location of shut-off water.
Territory affected by shut-off.
Engine companies and commanding officers notified.
Time notified.
Name of fireman or district officer receiving the message.
Signature of operator.

This report, after being telephoned to the fire houses affected by the shut-off, should be forwarded at once to the chief of the department. It should be filed in the office of the chief, and not with the telephone operators. The rule should likewise require that such messages, when received at the fire halls, should be recorded in the log book. The chief should also require that the department of works send a written communication to him at the end of each day, containing the same information as was transmitted by telephone, in order that the chief may have an official record over the signature of the authorities in charge of the water department.

Linemen's Time Sheet.

The linemen should be required to keep daily time sheets, upon printed forms provided by the department. These time sheets should be filed daily by each lineman, and should show :

- 1—Time he reported for work.
- 2—Time consumed upon each repair job or assignment given him.
- 3—Time he quit work at the end of each day.
- 4—Number of hours consumed upon assignments.
- 5—Total number of hours' service for the day.

Assignment and Repair Blanks.

In order to establish accurate cost accounts, assignment and repair blanks should be provided at once. The procedure should be for the superintendent to fill out an assignment blank for each assignment given the linemen, showing the location of the work to be performed, and giving instructions concerning the performance of it. Upon the same blank the linemen should be required to report the time consumed in completing the assignment, the material used upon the job, the location of the job, and the character of the repairs made. Space should be provided upon the blank for the superintendent, upon receipt of the report, to enter the actual cost of the job, the salaries of the linemen to be included in establishing the unit cost.

Wire Trouble Record.

A record, to be known as a wire trouble record, should be established at once. In this book should be kept an accurate record of every complaint of wire trouble, showing :

- 1—Time received.
- 2—Probable cause of the trouble.
- 3—Kind of trouble reported.
- 4—Location.
- 5—Name of lineman assigned.
- 6—Time assigned.
- 7—Time consumed in making the repair.
- 8—Amount of supplies used in making the repair.
- 9—Number of the circuit or circuits injured.
- 10—Number of fire alarm boxes put out of service by reason of the wire trouble.
- 11—Length of time said boxes were out of service.

This record should be kept chronologically, with a recapitulation at the end of each week, showing the number of complaints classified as to causes of trouble.

Record of Supplies.

This record should contain complete information of all supplies received by the division, showing:

- 1—Time.
- 2—Date.
- 3—Quantity.
- 4—Detailed description of the supplies received.
- 5—Supplies used.
- 6—Purpose for which used.

This record should also give information concerning the inspection and testing of supplies, showing when and by whom they were inspected and tested, and the process used in making the test. In entering supplies used, a record should be made of the person to whom the supplies were delivered. A recapitulation should be made at the end of each week, showing the amount of supplies received during the week, the amount used, and the amount on hand available for use.

Log Book for Telegraph Operators.

A telegraph operator should be required to maintain a proper log book. This record should contain a chronological history of the operations of the alarm division.

A red marginal line should be drawn, allowing two inches of margin on the left-hand side. The entries should be made as alarms occur, and in the margin should appear the time. Not only should the time be written in red ink, but a marginal notice should also be made as to the subject of the entry. For example, if the entry be that the operator reported for duty, the words "operator reports" should be written in red ink in the margin, under the time. If the entry be one relating to an alarm, the word "alarm" should appear in red ink. The same should be done with entries of tests, inspections, etc. When an error is made, a red ink line should be drawn through the erroneous entry, and the correction should be written alongside, over the initial of the operator making the correction.

If the entries for a day extend only to the middle of the page, a red ink horizontal line should be drawn across the page immediately below the last entry, and an oblique line, running from the left end of the horizontal line, should be drawn to the lower right-hand corner of the page. One line should be left blank between each entry. The superintendent should be required to inspect this log book at least once a week, and to enter in his own handwriting the time of such in-

spection and any remarks he may choose to make concerning it. He should likewise from time to time inspect the equipment of the telegraph bureau and enter the time and result of such in the same book.

Emergency Reports.

The rules of the department should require that the chief receive a written report from the telephone operators immediately upon receipt by them of information concerning large fires, accidents, injury to members of the force, or to the apparatus.

Rules to Govern Operators.

All of the operators attached to this division should be governed by definite rules and regulations. These rules should provide for the sending of a regular alarm upon receipt of telephone notice of a fire. The operators should have no discretion whatever in the matter of sending apparatus. An alarm of fire received over the telephone at fire headquarters should be treated in the same manner as a box alarm.

As suggested elsewhere, the present practice of sending fire service reports over the telephone should be abandoned. The practice of notifying headquarters, during the progress of a fire, of general facts in connection with the fire, should be continued, but such a report should be informal and give only general information. It should be in no sense a fire service report.

Total Absence of Maps and Charts.

With the exception of a set of maps from Goad's Atlas, upon which are indicated the water mains and hydrants, the fire department has no maps or charts showing fire danger zones, water hydrants and mains and such other conditions with which it is necessary for firemen to be familiar.

The council should provide an appropriation immediately for a supply of maps and charts for headquarters, and for the fire halls in the city, upon which should be plainly indicated the following:

- 1—Location of water mains and their size.
- 2—Location of water gates.
- 3—Fire hydrants, pumping stations, and mains supplied by them.
- 4—High pressure district.
- 5—Fire houses.
- 6—Fire alarm boxes.
- 7—Street car lines.
- 8—Hospitals.

9—Theatres.

10—Moving picture shows.

11—Public buildings.

12—Congested value districts and their boundaries.

13—Extra hazards.

14—Buildings in which explosives and combustibles are stored and manufactured.

The maps and charts for headquarters should cover the entire city, while those for the fire halls should be confined to the particular fire district. These charts should be kept up-to-date. Members of the department should be required by rule to familiarize themselves with the information contained upon the maps and charts, and should occasionally be examined by the district chiefs. A report upon such examination should be filed with the chief. The office of the chief should be supplied with an atlas containing a description of all the property in the city. Such an atlas is on sale in the city of Toronto.

BUSINESS MANAGEMENT

The chief of the fire department is the administrative head of that department. Notwithstanding this fact, he does not exercise administrative control over either the purchase, storage, or distribution of supplies and materials, with the exception of a few items.

The Chief Receives No Reports.

The chief receives no reports whatever concerning the business administration of his department. Even if he did have a general system of recording, it would be difficult for him to exercise business judgment, because his functions as chief of the department embrace the administration of the business affairs and direction of the physical fire-fighting. The result is a lack of administrative supervision. The chief of the department is frank to admit his lack of control over the business side of the organization, and has placed the responsibility for the business management in the hands of the secretary of the department.

Methods of Administration Not in Keeping with Growth of City.

The methods employed in business transactions of the department have undergone no change or improvement corresponding to the city's growth in population, area and importance, to the fire department's increase in numbers of uniformed men, or to increased detailed clerical routine which forms a part of the duties of the secretary.

Present Functions of Secretary.

The present functions of the secretary of the department combine those of secretary of the pension fund, bookkeeper, light inspection, and the purchasing and inspection of supplies. In addition, the secretary has not only the supervision of the business management, but he also performs the clerical work in connection therewith. Under these conditions, it is practically impossible for the secretary to maintain effective administrative control over the business management of the department.

The Fire Chief Should Not be Held as Business Manager.

The business management of the Toronto Fire Department is of no small importance. In view of the experience of departments in other cities, it is suggested that the function of administration of the business affairs be separated from the function of fire-fighting, and that the fire chief be no longer held or made responsible for both. The function of the chief of the department, with respect to the business management, should end with his responsibility for making requisitions and specifications for the equipment needed. He should specify the proper apparatus, equipment, materials and supplies which in his opinion are essential to fire-fighting, but should not act as purchasing agent.

Business Functions Should be Transferred to Other Departments.

The business affairs of the fire department should, to a large extent, be transferred to other departments better manned to perform these duties. Such business functions as remain should be a part of the duties of the secretary of the department. These would be such only as are necessary for effective administration and supervision, and such as will provide the basis for the preparation of estimates, and the exercise of control over the administrative efficiency of the fire department.

Light Inspection.

Inspection of lights is in no sense a function of the fire department, and the secretary should be relieved of the work of supervising the lighting inspection of the city. This function should be transferred to the works department.

Central Purchasing Agency Should Control all Purchases.

Purchasing should be taken out of the secretary's office, in case a central purchasing department for the city is established to which this function should be transferred. This readjustment would enable

the secretary to devote greater attention to the inspection of supplies delivered, and make a closer scrutiny as to the quantity and quality and distribution of supplies received. By relieving the secretary of the department of a number of functions now comprising his duty, attention could be centered upon the preparation of statistical information with regard to the consumption, use, durability and the like of materials and equipment provided.

Inefficient Methods Used in Preparation of Estimates.

The only estimates for the fire department are prepared by the secretary. The chief approves them.

The methods employed in preparing estimates are not scientific. For example, the appropriation account headed "Keep of Horses" is founded upon the cost per horse per day, including forage, straw, repairs to harness, medicine, and other miscellaneous items in connection with the care of horses. The experience of the preceding year is used as a basis for determining this per capita cost. No appropriation can be scientifically prepared where it comprises a number of different items, all of which can vary materially. The cost of feeding has not been determined properly from the records of consumption. The secretary of the department stated that this year the department would not spend its entire appropriation, because the prices for oats were far below the prices paid last year. Had the price of oats increased, the appropriation would not have been sufficient to answer the needs of the department.

Items of Expenditure Should be Properly Classified.

It would greatly add to the department's efficiency if a proper classification were prepared for the various items of expenditure. If the classification of accounts were standardized, the department could be expected to establish an effective administrative control such as it now lacks. Such accounts would provide a better basis for annual estimates, if used in conjunction with the record of consumption and prices paid, or to be paid, under annual contracts. Price fluctuations are an important factor to-day in determining the size of the appropriation, whereas if contracts for the entire year's supply could be made at stated prices, the amount of the appropriations could be ascertained with much greater accuracy.

Appropriation Ledger Not Maintained to Date.

This department, like all other city departments, is prohibited from exceeding its appropriations as provided in the budget. This implies that the department should know at any time the condition

of its appropriation accounts, whereas several accounts, among them "Keep of Horses," had not been posted on November 19, since June 1, 1913. The secretary stated that it would be a matter of but a few hours to bring the account up to date, but taking into consideration that other accounts are in a similar condition, it is clear that the department could not readily determine the condition of its funds. It rests entirely upon the memory of the administrative officials whether sufficient or insufficient funds remain to meet the proposed expenditure, since they do not have before them in writing an appropriation account statement.

Day Book Unnecessary Labor.

The day book which the secretary keeps posted to date contains, in chronological order, all items of purchase and other items of expenditure, from all appropriation accounts, in much unnecessary detail. The method of posting entails writing the titles of the different appropriation accounts very many times. It is suggested that the present day book be discontinued. The unnecessary labor involved in posting this record would be saved, and could profitably be applied to posting the ledger. A record less cumbersome than the present ledger should be substituted, which would provide a greater amount of information, and would combine a number of records now maintained separately.

Condemnation of Property.

No definite rule of procedure is in force in disposing of the condemned property of the department. Horses, after they become useless for department purposes, are sold by the chief at public auction, while old hose is sold to anyone willing to purchase it, at prices fixed by the secretary of the department. Such supplies as rubber coats, and other miscellaneous items of this nature, are not sold at all, but thrown into the cellar, where they remain until removed.

Other City Departments Should be Given First Choice at Sales.

It is suggested that the department should not sell horses to bidders at public auction unless other city departments, which may be in need of horses, have first been consulted; as, for example, the street cleaning and garbage collection departments, which are frequently in need of new horses.

It is suggested that hose condemned by the departments be sold to the street cleaning department or other city departments desiring it, and not to individuals. If it is considered wise to sell hose to out-

siders, following the present practice, it is suggested that it be sold at auction. All discarded rubber goods which are not absolutely worn out should be sold in a similar manner.

Tender Specifications.

The fire department advertises for all supplies to be bought, except forage. Each applicant desiring to put in a bid is provided with a form of tender. The tender for the supply of clothing is the only tender which is accompanied by detailed specifications showing the grade and quality demanded. All other tenders, for apparatus, hose and other items, are submitted by dealers, with specifications covering the materials manufactured by them.

For forage, there are no tenders, and no specifications. All forage is bought in the open market; in small lots from farmers, and in car-loads from wholesale dealers. This right was granted to the department in a by-law, which also provides that forage may be purchased in the open market, in excess of a general limitation of two hundred dollars.

Specifications for all Supplies Should be Provided.

It is important that specifications be provided for every kind of apparatus and supply used by the department. This should apply particularly to apparatus, hose and forage. A standard should be chosen which would make it possible for several firms to bid. Specifications should not include any one patent, but provide alternatives equally good. Forage should be specified by trade names, accompanied by samples, in order that comparisons may be made when deliveries are executed.

It is suggested that the contract for forage for the fire department should not be made separately from contracts for forage to be bought for other city departments, but should be made a part of each general contract covering all grades and qualities of food, and purchased through a central purchasing agency.

Selection of Supplies and Determination of Grade and Quality.

Forage is the only item which may be purchased by the fire department without the sanction and approval of the council. All other fire department supplies and apparatus must be approved by the board of control, if the cost is to exceed \$200. The secretary of the department is the sole judge of the quality of forage to be supplied. He also determines whether the price asked for forage is excessive or reasonable.

The chief of the fire department is the sole judge of when apparatus and hose are needed. When apparatus or hose is to be purchased, the chief of the fire department makes his selection from among the tenders handed in by different firms, and recommends the purchase of some particular make of apparatus or grade of hose.

Selection of Hose Irregular.

The board of control reviews the selection, and it has been the practice of late, not to purchase one kind of hose recommended, but to distribute the order among a number of firms. Thus, if the chief recommends the purchase of 5,000 feet of two and a half inch hose, of a certain grade and make; when the hose is delivered, instead of 5,000 feet of one make at one price, various quantities of hose of different prices and kinds making up the 5,000 feet will be delivered. The hose thus purchased will vary in price from 85c to \$1.10 per foot.

The department possesses Dunlop, Paragon, Magna, Keystone and Eureka hose. The hose was bought from dealers on specifications and guarantees supplied by them. Although the guarantees and specifications of all firms are identical, experience has shown that certain hose stands the wear and tear longer than others, and that certain hose is better fitted under given conditions. The condition described above was brought about by a desire of the board of control to respond to a demand made from the different manufacturers, all of whom are taxpayers in Toronto.

Present Method of Selecting Apparatus and Hose Should be Discontinued.

The present method of selection of apparatus and hose to be bought should be discontinued. Standard specifications should be prepared, embodying adequate tests, which would provide the kind of apparatus and hose needed, and at the same time admit of proper competition, based upon quality and price.

The present method of purchasing forage is unbusinesslike. If the secretary is a good judge of forage, he may be permitted to make the selection, but not the determination of the price to be paid, nor should he be the one to pass upon the acceptance of deliveries. Standard specifications and rigid inspection of deliveries provide the best known basis for obtaining the quality desired. It would be a considerable advantage if the treasury department were required, from time to time, to make tests of inspection of supplies received by the different city departments.

Test as to Quality, Weight and Amount.

Pressure tests of hose are sometimes made, but the system of testing is far from satisfactory. Frequently, the test of hose is confined to a test of but two or three lengths of an entire delivery of many thousands of feet of hose.

Inspection of oats is not made at the point of delivery, but the selection is made from carloads, and it is assumed that the forage selected is actually delivered.

Hay is selected at railroad terminals, and from there transferred by the dealers' wagons to the different fire stations. There is nothing to prevent the driver from unloading another brand from a car not selected by the secretary, since there is no inspection upon delivery. Neither is there any definite check as to the quality and weight received. The weighmaster accepts the statement of the driver as to bags or bales, only certifying as to weight. It is possible for the driver to understate the number of bales of hay or bags of oats by one or two, for example, and thereby make short deliveries.

Both the chief and the secretary of the department stated that they have never found any such shortage, nor were there any indications thereof.

All Supplies Should be Properly Tested Upon Delivery.

It is important that test inspections be made of every supply purchased. For this purpose there should be a central testing laboratory, which will perform all the tests necessary for the entire city. The hose should not be tested as at present, one length out of an entire consignment; at least twenty per cent. of the lengths delivered should be subjected to test. There should be proper inspection as to weight and amount at the point of delivery, in order to preclude any possibility of non-delivery of all supplies for which payment is made. Both weight and amount should be certified by a competent person with authority, and this person should be held responsible for any shortage which may result.

The bills should be certified by this same person, and only upon his certification should the bills be paid.

It is important that, at the place of delivery, there should be provided means for properly checking the weight and quality, should a central testing laboratory not be established.

An Illustration of Loose Business Management.

All of the bed linen and towels used at the fire halls are laundered at the expense of the city. The amount expended for this work approximates three thousand dollars (\$3,000) a year. The price to be paid for the laundry work is determined by the chief of the department, and the persons to do the laundry work are selected by the chief.

The method employed in having the laundry work performed serves to illustrate the loose business management of the entire department. This work is done in part by two commercial laundries, but the most of it by women, all of whom are widows. The price paid the commercial laundries for bed linen and towelling is 24c per dozen, while the price paid the women for the same work is 50c a dozen. The commercial laundries, however, are only given the laundry work for four of the twenty-seven fire halls.

When asked why this work was not given to the lowest bidder, the secretary of the department stated that the chief felt it was a "decent charity" to give this work to the widowed women, at the increased cost. It might also be noted here that the women who are doing this work are not the widows of deceased firemen.

The laundry work for the fire department should undoubtedly be given to the lowest bidder. If the city desires to extend charity to the widows, such charity should be given through the city department having control over charitable work, and the expense of such charity charged against that department, and not against the fire department.

No Inventory.

The inventory of supplies on hand is not known. A separate account is not kept of each supply carried in the storeroom. It would be necessary for the storekeeper to take an inventory in order to ascertain the stores on hand. No bin records are maintained, so that the storekeeper is without any control or means of checking the supplies in the bins. Neither is it possible for the storekeeper or anyone connected with the department to point out definitely which supplies were ordered and which received in different years.

When visiting the storeroom, an inventory of hose was attempted. The secretary of the department and a district chief made efforts to

recall from memory the year of purchase which appears in the following statement:

Hose on Hand—November 11, 1913.

Year of Purchase	Kind of Hose	Size.	From whom Purchased.	No. of Lengths	Total Linear Feet
1911	"Eureka"	2 "		15	750
1911	Chemical Hose	1 "		11	550
					1,300
1912	"Magnet"	2½"	Goodyear Rubber Co.	22	1,100
1912	"Magnet"	2½"	Goodyear Rubber Co.	31	1,550
1912	"Keystone"	2½"		9	450
1912	"Paragon"	2½"		38	1,900
					5,000
1913	"Magnet"	2½"	Goodyear Rubber Co.	24	1,200
1913	"Dunlop"	2½"		58	2,900
1913	"Paragon"	2½"		58	2,900
					7,000
1913	Crown Underwriters Linen	2 "	Gutta Percha Rubber Co	30	1,500
1913	"Star" Linen Hose	2 "		30	1,500
					3,000
On hand for several years:					
3½"	Eureka High Pressure Hose			27	1,350

Records Not In Agreement.

Either the recollection of these employees, or the record showing the distribution of hose, or both, proved to be incorrect, because when the amount of hose distributed in 1912 was compared with the inventory of hose bought in 1912, the amount distributed in 1912 exceeded the amount bought during that year by 2,300 feet. Any one of the following causes may account for this discrepancy:

- 1—The record of distribution during 1912 may not contain hose which was purchased in 1912 only, but hose purchased in previous years.
- 2—It may be that the recollection of the two employees was incorrect with regard to which of the many lengths of hose lying in the storeroom belonged to consignments bought during 1912.
- 3—It is also possible that the record showing total amount of hose bought during 1912 contained an error.

In contrast to the reconciliation of the 1912 figures are the figures of 1913, in which a shortage of 12,000 feet was first discovered and subsequently accounted for. It appears that in 1913, 22,000 feet of hose was bought, 7,000 feet of which was two and a half inch hose of different makes, and 15,000 feet of which was two inch hose of different makes. The 7,000 feet was properly accounted for in the storeroom. But of the 15,000 feet the storeroom record showed 3,000 feet on hand, but no record of distribution, nor any memorandum, requisi-

tion, or like record was in the storekeeper's possession for the remaining 12,000 feet. After some inquiry, it developed that the chief had had this quantity of hose sent to Toronto Island, without giving any written order.

In taking up this item, another interesting fact developed, namely: that the books of the secretary of the department showed the purchase of 22,000 feet in 1913; whereas the books of the storekeeper only showed the receipt of 20,750 feet, making a seeming shortage of 1,250 feet.

No Inventory Ever Made.

From the storekeeper's own statement, it was learned that no physical inventory has ever been taken. In 1911 a list was prepared of the stock in the storeroom for accountants who were then making an audit and investigation. This list, however, was not proven by the investigators, but accepted as correct.

Memoranda on small pieces of loose paper produced by the chief, the secretary, and other members of the department represented records of inventory at different periods. These memoranda were so incomplete, unsatisfactory and unbusinesslike that it is surprising to note that they were the basis for the annual report.

Storekeeper's Records Poorly Kept.

The storekeeper's record of supplies received is a bound book very poorly kept. Although it is supposed to show date received, quantity and item received and name of sender, the quantity of supplies received is frequently not entered. Abstracts which follow best illustrate this point:

- Aug. 28—Received annual reports from Caswell & Co.
- June 7—Bushel oats—McKeggie & Co.
- Oct. 11—Double grey blankets.
- Oct. 29—Fur caps—A. A. Allan.
- Nov. 19—Parcels, winter clothing—Rex Tailoring Co.
- Sept. 25—New uniform caps—Crown Tailoring Co.
- June 24—Summer clothing—Crown Tailoring Co.
- July 28—Pounds oats—J. A. Peer & Co.

Some of the entries in this record were in lead pencil, others in ink, others in indelible pencil.

From the nature of the entries, and the method in which these entries were made, no control can be exercised over the quantities received, nor could alterations, made after the receipt of the goods, be prevented.

The storekeeper does not enter in any record or book supplies given out. By means of a checkmark against the item stated in the requisition, he indicates that the supply requested was delivered, and the omission of a check indicates that the supply was not delivered. Frequently it is found that the requisition calls for a quantity which was changed in lead pencil to another quantity, because when the requisition was made, there was an insufficient quantity of the supply requested.

From methods now employed in recording receipts and disbursements of supplies, it is evident that no reconciliation can possibly be made between total receipts for any given year, and the inventory on hand as of a given date.

Storekeeper Exercises no Audit or Check.

Although the rules and regulations of the department, as prescribed by council, impose upon the storekeeper the duty of visiting each fire station at least twice in each month, for purposes of observing the supplies on hand and the manner of using them, the storekeeper has not complied with these rules. In fact, he exercises no audit or check as required under the rules.

New Records Recommended for Storeroom.

For administrative purposes it is important to be able to determine the inventory at any time. To this end, a separate account should be kept for each supply carried in the storeroom. This should be a card record, and should show the following information:

- 1—Designation of article.
- 2—Details of article.
- 3—From whom bought.
- 4—Minimum and maximum quantities to be carried in stock.

On the debit side should be shown:

- 1—Balance brought forward from previous year.
- 2—All receipts during the current year.

On the credit side should be made a record of distribution based upon requisitions.

In pencil, a balance should be carried forward after each entry, and at the close of the year, on the credit side, should be entered balance on hand, after inventory was taken. A reconciliation should

then be made between the card and the inventory on hand. This would provide an absolute record, and would enable the storekeeper at any time to know the condition of his inventory.

All Deliveries Should be Made Through Storeroom.

It should be made a hard and fast rule that no supplies or materials received by the department should be delivered at stations and other places, unless either the supplies pass through the storeroom or the record of receipt is passed through the records of the storekeeper. In the latter case, the storekeeper would make an entry on both the credit and debit sides of the same quantity. For the entry on the credit side, he would demand a requisition from the person who receives the goods. Such a procedure would make impossible such discrepancies as are described above.

Physical Inventory Should be Taken Annually.

At the close of every year a physical inventory should be taken and a reconciliation made between the stores record and the inventory on hand.

Loose Distribution of Supplies Should Stop.

All present practices of entering items given out or received without noting quantities should be discontinued. Neither should it be permitted for the storekeeper to make his record in pencil. Requisitions calling for a greater quantity than is in the possession of the storekeeper should be returned for correction to the person making the request, or the storekeeper should be directed by an officer of the department having such authority to alter the requisition to comply with quantities which he is able to deliver.

The storekeeper should be made responsible for all supplies of the department, and should be held to account for any shortage which may result.

Distribution.

Not all deliveries which leave the storeroom are upon requisition. When the supply of hay, oats or bran is nearly used up at a station, the man in charge notifies the secretary of the department by telephone. The secretary then orders certain forage delivered at the station. No record of this delivery is made in the storekeeper's books, nor is there any record made of the delivery, except for the memoranda which the secretary of the department makes in his day book and his appropriation ledger.

Requisition System Faulty.

All other supplies and materials of the department are obtained supposedly upon requisition. The requisition frequently calls for a number of different items. It is signed by the captain, and supposed to be approved by the district chief. Of a hundred and seventy-two requisitions taken at random, forty did not bear an approval signature of the district chief. Requisitions are made for rubber coats and helmets. When a new coat or helmet is wanted, the fireman turns in the old one. It occurs quite frequently that minor items, such as brushes, chamois and the like, are on the same requisitions as hose.

The storekeeper delivers all supplies, when in stock, without approval from the chief or any one who should be in a position to use administrative judgment.

Each fire station is not charged with the supplies which it receives, nor is it required to make an accounting therefor. There is no record maintained in the fire stations from which a comparative statement could be prepared of supplies received, because requisition stubs are not altered when they are not filled as called for. No control statements are prepared by fire stations for administrative purposes.

Bad Methods of Distribution.

The method of distribution varies with the different kinds of supply and materials delivered to stations. Coal, for example, is not a part of the fire department's supplies, and is delivered under the orders of the property committee. Forage is delivered by dealers' wagons directly from the freight termini. Other supplies are distributed from the storerooms located at different places.

No Records of Consumption.

Due to the absence of records of consumption, at present it is not known to the administrative officials whether or not some fodder remains unused at the end of the month, and what becomes of it. Under present methods, it is impossible to determine who is more economical and pays greater attention to the feeding question at the different stations. This condition is the result of an absolute lack of a feeding record.

Requisitions Should be Required for all Deliveries.

The present practice of making deliveries should be discontinued. No deliveries at all should be made without requisition properly signed and approved.

The more important items, such as forage, hose, rubber coats, boots and helmets, should be made on separate requisitions, and approved by a person of administrative authority. It is quite important that from these requisitions a comparative statement be prepared periodically for administrative purposes. Such statements would, in a very short time, disclose which of the many stations were more efficient in the use of the various more important supplies of the department.

Accounts of Materials and Supplies for Each Station.

It is also recommended that an account be opened with each of the different fire department stations, and that each account be charged with all materials and supplies received.

The present practice of not making the person receiving the goods verify the delivery should be abolished, and means should be provided for making it possible for each person receiving goods to verify the delivery both as to quantity and weight.

Records and Reports

While the city of Toronto has been fortunate in the high character of its officials, the confidence imposed in those in authority and the long period of their service has operated to cause many of those in authority to rely almost wholly on personal contact and memory for evidence, instead of providing themselves with a system of records and written reports. To the present chief, who has been in office many years, this may not seem a serious handicap. But a new chief upon taking office would find himself greatly handicapped in reorganizing the department, because of the almost total lack of valuable records. He would have no means of finding out what had been done, except what someone might tell him. He would have difficulty in obtaining a statement representing past records as a basis for judgment. Until recently the department did not even maintain a letter filing system. Not only does the department fail to maintain proper records, but the records which are maintained are not uniform or adequate. The department is almost wholly without operating statistics.

Operation Reports Principally Oral.

There are no blank forms provided upon which to make the various necessary reports, so that the chief of the department may receive information currently, not only as regards administration, but likewise with respect of the fire extinguishing branch of the department. In the few instances in which written reports are submitted, lack of uniformity prevents an intelligent handling and filing

of them. Oral reporting not only leaves a department without valuable records for future reference but it makes it impossible to fix responsibility and to hold the person making the oral report strictly to account for the information orally imparted.

The importance of records and the tremendous disadvantage of oral reports was brought home to the chief of the department with much force during the recent investigation before Mr. Justice J. H. Denton, when witnesses for the department suffered considerable embarrassment because they were forced to rely upon their memories when examined for facts which should have been readily ascertainable from the records. The records concerning the business management of the department will be touched upon in another section.

No Written Reports of Fires.

The most important report in use in connection with fire-fighting is what is commonly known as the fire service report. This report is a report on the operations of the force in connection with each individual fire, and should contain as much detailed information concerning the fire and the methods employed in fighting the fire as it is possible to record. Its importance may be more easily realized when it is understood that from this report practically all the statistics of fire-fighting and fire losses are tabulated and analyzed. This report in Toronto is made orally over the telephone. Not only is the practice of orally reporting upon fires inefficient, but the facts required by the fire chief in the fire service report are wholly inadequate. The present practice is for the telephone operator receiving the message from the captain or district chief to enter upon a slate the following information concerning each fire:

- 1—Date.
- 2—Day of week.
- 3—Number of box.
- 4—Companies responding.
- 5—Time of alarm.
- 6—Time of signal out.
- 7—Location.
- 8—Description of property destroyed or damaged.
- 9—Number of stores.
- 10—Material used in construction.
- 11—Owner.
- 12—Occupant.
- 13—Losses—building—goods.
- 14—Insurance—building—goods.
- 15—Cause of fire.

This information is not forwarded immediately to the chief, but is retained on the slate until the following morning, when the slate is forwarded to a clerk, who enters the information in a bound book having printed headings corresponding to those listed above. Thus the chief, who is the responsible head of the fire department, does not receive any report whatever upon the operations of the fire department.

At the fire halls no adequate record of the activities of the company is maintained. The only records kept at the individual fire halls are a roll book and so-called fire record. Even the fire record is not kept in any uniform way, since different fire captains enter different facts in connection with the fires in the fire record book, and none of them enters sufficient information to make the record of any value.

No Report of Hose Breaks.

The captains are not even required to make a written report of bursting hose at fires. Thus it was impossible to tabulate from the records any information concerning bursting hose or delays caused by hose break at fires.

Condition of Apparatus not Properly Reported Upon.

Unless an accident to the apparatus or a defect requiring extensive repairs occurs, no report as to the condition of the apparatus in use in the department is made to the chief, although the superintendent of engines is supposed to inspect the engines and apparatus regularly.

Absence of Firemen Not Properly Reported.

Payrolls of the department are made up by the secretary each month from the payroll of the preceding month, as no time sheets or time service reports are made by the commanding officers. The practice is for the captain or district chief to report orally over the telephone the absence of any member of his command. This absence is noted by the chief. No record is maintained at headquarters of the absences of members of the department.

No Running Card.

Until recently the department was without any running card. During the survey a running card was in the course of preparation, but it is interesting to note that the Toronto fire department has been operated for many years without any proper running card.

No Reports of Inspections Made.

Although the district chiefs are supposed to make inspections of property within their districts, no written reports are made to the chief of the department upon such inspections, except when the inspections are ordered directly by the chief after complaint or inquiry from other city departments. In such cases informal memoranda are filed with the chief. These reports, when received by the chief, are not filed in any manner which would make possible speedy reference or inspection. The fact is that most of these reports are bundled together and thrown carelessly into a drawer, without any regard to indexing or alphabetical arrangement.

No Records of Health of Members.

Because of the present system of orally reporting the absence of members of the department on sick leave, and because of the fact that no record is maintained of such absences at headquarters, it is impossible for the chief of the department to know from time to time during the day the exact strength of his force, station by station. It is equally impossible for the chief, from any records maintained at headquarters, to determine the physical condition of the members of the force, since no health records are kept.

No Personal Force Records Are Maintained.

As stated elsewhere in this report, because of the absence of any efficiency records or personnel records concerning the individual members of the force, the chief is without any records on personnel which would be of value either to himself or to any succeeding chief. Even the original letter of application for appointment is not filed in a way which would make it readily available for future reference.

No Proper Filing System.

The files of the department consist of one four-drawer vertical filing cabinet, and the system of filing is by alphabetical arrangement, without any regard for sub-classifications. There are no rules or regulations covering the methods of filing, and consequently no uniformity is used with regard to the filing of documents.

Proper System of Records and Reports Should be Established.

A proper system of records and reports which would make intelligent control possible should be established at once, and it is therefore recommended that the rules and regulations of the fire department require that all reports be made in writing upon specially provided printed forms. The rules should not only require the filing

of written reports, but should specifically provide the kind of reports to be made, the subjects to be reported upon, and the manner of making such reports. They should likewise state specifically the kind of records to be maintained and the manner in which such records should be kept.

It is recommended that the rules require at least the following records and reports in connection with the administration of the uniformed force:

- 1—Proper fire service report.
- 2—Individual company's file report.
- 3—Fire service record book.
- 4—Report upon bursting hose.
- 5—Daily time sheets for each fire hall.
- 6—Log book at each fire hall.
- 7—Complete description of each building in the district (upon cards in each fire hall).
- 8—Card records of individual members of the force.
- 9—Fire prevention inspection reports.
- 10—Monthly reports upon condition of apparatus and equipment.
- 11—Health reports of members of the force.
- 12—Individual efficiency records.
- 13—Records in connection with the training school for firemen.
- 14—Proper records of changes and disposition of charges against members of the force.
- 15—Record of complaints.
- 16—Record of places licensed to sell, store, transport or manufacture explosives or combustibles.
- 17—A record and description of moving picture shows, theatres and all places where large assemblages are permitted.
- 18—Fire hydrant reports.
- 19—Reports on fire drills at stations.
- 20—Horse records.
- 21—Record of assignments and transfers.
- 22—Record of fire stations.

Fire Service Report.

The chief should provide at once a printed form, to be known as the "fire service report". The headings on this form should include the following:

Number of alarms sent in.

Duration of fire.....hours.....minutes.

Location of fire.

Date.

Day of week.

Time alarm was received.

Time of signal out.

First company to arrive.

Time of arrival.

Alarm received by box signal.

Alarm received by telephone from telegraph bureau.

Alarm received from outside telephone.....verbally.....
any other manner.

Alarm communicated by.

Cause of alarm.....fire.....unnecessary.....
false alarm.....other cause.

Description of Building.

Stories high.

Material built of.....fireproof.....semi-fireproof
.....non-fireproof.

Character of building.....tenement.....private
dwelling.....factory.....loft building.....etc.

Size.

Name of owner.

Address of owner.

Name of occupants of part of building affected by fire.

Name of other occupants and floors occupied.

Part of building where fire originated.

Fire extended to.

Amount of insurance, buildings.....goods.....

Estimated loss, buildings.....goods.....

Probable cause of fire.

Apparatus Responding to Alarms.

First alarm:

Engine company No.....Truck company No.....
Chemical.....Fuel wagons.....

Second alarm:

Engine company No.....Truck company No.....
Chemical.....Fuel wagons.....

Third alarm:

Engine company No.....Truck company No.....
Chemical.....Fuel wagons.....

Fourth alarm :

Engine company No.....Truck company No.....
 Chemical.....Fuel wagons.....

General alarm :

Engine company No.....Truck company No.....
 Chemical.....Fuel wagons.....

Number of men on fire grounds, chief officers.....company
 officers.....men.....

Time second alarm was ordered.

Time and by whom sent in and from what box.

Time of each subsequent alarm and by whom ordered and who sent
 in.

Box number.

On the reverse side of this form space should be provided for a record of all officers present at one fire arranged in the order of rank. This record should include besides, the time the officers arrived at the fire and the time they left. The lower half of the forms should be devoted to a complete and detailed description of the method used in extinguishing the fire, i.e., by chemical, water line, or other means. Under the heading "Remarks" should appear a detailed description of any accidents or rescues, or any other incidents in connection with the fire.

This service report should be made out in duplicate by the first deputy chief to arrive at the fire, or by the district chief in whose district the fire occurs. One copy should remain in the office of the district chief and the other copy should be forwarded to the chief of the department. The form should not exceed eight inches by eleven inches, and should be so arranged as to permit of binding in convenient book form. Upon the original copy of each form to be filed with the chief, there should appear printed at the top the following headings:

- 1—Number of fires so far during the present year.
- 2—Number of false alarms so far during the present year.
- 3—Total number of fires during the preceding year.
- 4—Total number of false alarms during the preceding year.
- 5—Total number of fires up to the same date of the preceding year.
- 6—Number of false alarms up to the same date of the preceding year.

This information should be filled in at fire headquarters upon receipt of the fire service report. Each day these reports should be copied into the fire service record book, which should have printed headings corresponding to the headings upon this form.

Individual Company Fire Report.

Each company should be provided with printed fire report cards. A separate report from each company upon the activities of the company at each fire should be filed with the chief of the department. This report form should be upon a card not to exceed five and one-half inches by eight and one-half inches. It should have thereon, among other things, the following:

Report of fire number.....during year 19....

(The number of the fire should be written in at headquarters and not by the fire company.)

Engine company number.....Truck company number.....

Fire number.....attended by this company during 19.. month
.....day

Report of fire at number.....

Alarm received by—telegraph.....telephone.....
local.....

Time alarm was received.

Time (if engine company) consumed in reaching a coupling to hydrant.

Location of hydrant coupled to.

Time delayed.

Cause of delay.

The hydrant was found in.....condition and was used with
.....pounds for.....hours.....minutes and with
.....pounds water pressure for.....hours.....
minutes.

Number of gallons of water used.

Reported to.....and were ordered by:.....

Number of minutes consumed in getting a stream on the fire.

Amount of delay, if any, and reasons.

The pipe was taken to.....and.....inch stream kept there
.....hours and.....minutes, then taken to.....for
.....hours.....minutes, then taken to.....for
.....hours.....minutes.

The supply of water was.

The company was out of quarters.....hours.....minutes.

The company was used at the fire.....hours.....minutes.

The average pressure on line was.....pounds and the hose pressure was.....pounds.

.....feet of.....hose in the line.....inches.....
nozzle.

On the reverse side of this report there should appear headings calling for remarks concerning department property lost, found, destroyed, accidents, etc. There should also appear the list of names of the officers and men attached to the company who attended the fire and the names of those who did not attend, with the reasons for their absence. This report should be signed by the commanding officer of the company, and forwarded to the district chief, who should be required to review the report and to sign the same before forwarding it to the office of the chief.

Each company, whether engine company, truck company or chemical company, should be required to forward a separate report for each fire attended. Companies using chemicals should be required to fill in in detail on the back of the report, under the heading "remarks", the amount of chemical used at fires, the time the stream was first turned on and any difficulty they might have had with the apparatus.

This individual fire company report is a most important record, and should be filled out with as much detail as possible and, of course, with the greatest accuracy. To the practical fireman this report will seem difficult to prepare, and the argument will be made that it is impossible to record with accuracy the information called for because of the speed with which the firemen must work. It is not expected that in the beginning this record will be absolutely accurate, but it is maintained that such a record can be made without interfering with the routine fire-fighting, and with necessary accuracy. It is especially important as a protection to the department, and as a guide to the chief in his administration of the force.

Time Sheets for Each Fire Hall.

Each commanding officer should be required to keep a time sheet for the members of his command upon specially provided printed forms. This time sheet should show:

- 1—Each roll call during twenty-four hours.
- 2—Names of absentees.
- 3—Duration of absence.
- 4—Cause of absence.
- 5—Time consumed by the firemen for meals.
- 6—Time consumed at fires.
- 7—Time on watch, etc.

This report should be filled in each morning before nine o'clock and forwarded to the office of the district chief, where it should be re-

viewed for accuracy and signed. Then it should be forwarded to the office of the chief, where a consolidated morning return should be compiled from the reports of the several district chiefs. While on the individual reports from the fire halls, the names of all members should be listed, on the consolidated return only the number present, the names of those absent and the causes therefor need be noted. Upon the daily time sheet should also appear a report of any injury to the property of the department. Thus by ten o'clock each morning the chief of the department should have in front of him upon his desk a detailed report concerning the movements of his force for the preceding twenty-four hours and up to nine A.M. of the current day. The rules should prescribe that any absences during the day should be reported upon immediately in writing to the department head. After having been reviewed, these time sheets should be properly filed and the monthly time service report, from which the payroll should be prepared, should be made up from these reports.

Fire Hall Log Book.

Each fire hall should be required to maintain a log book. This book should be a chronological history of the activities of each fire company, arranged according to a definite specified form. In it should be kept all roll calls, the record of meal times, absences, etc., and also the record of the companies at fires, thus doing away with the present roll book and fire record at the fire halls. Across the entire top line of each page should be written the day of the week, the month and the year. Each day should begin at the top of the page. A marginal red line should be drawn the length of the page, allowing two inches of margin on the left-hand side. All entries should be made chronologically as they occur, and in the margin should appear the time. Not only should the time be written in red ink, but there should also be a marginal note on the subject of the entry. For example, if the entry be roll call, the words "roll call" should be written in red ink in the margin under the time, or if the entry be one relating to a fire, the word "fire" should appear in red ink, the same being true of such entries as alarms, accidents, absence, meal time, etc. When an error is made a red ink line should be drawn through the erroneous entry and a correction written alongside, with the initials of the person making the correction. The rules should prohibit erasures, not only in this, but in every entry. If the entries of the day extend only to the middle of the page, immediately beneath the last line of the entry a horizontal line drawn across the entire page, and an oblique line running from the left end of the horizontal line to the right-hand corner of the page should be drawn,

in red ink. One line should be left blank between each entry. The rules should require that the district chief inspect the log book upon each visit to the fire hall.

Record of Structures.

Each district chief should be required to maintain a record book or card record containing an accurate description of all buildings and structures in his district. Each fire station should maintain either a book or card record in such form as to be accessible to firemen, containing a full description of every building in the district. This description should be sufficiently detailed to show the location of stand pipes, sprinklers shut off, tanks, hatchways, elevators, boiler rooms, electric light switches and other switches, gas connections with mains, as well as the weight and character of material stored on each floor. Such description should contain an accurate sketch of the building, with its exits and floors adequately shown. No record of a fire department is more important and of more value to the fireman in extinguishing fires than this.

A district chief or a captain, upon arriving at a fire, should have available for his use an accurate description of the building in which the fire is located. He should be able to turn to his record when directing the work of the firemen. Not only for the sake of reducing fire losses, but also to guard against loss of human life (especially the lives of firemen, who must enter burning buildings), it is imperative that the commanding officer be familiar with the weight which is being supported by each of the floors in the building. Such knowledge is necessary to enable him properly and safely to direct the movements of his subordinates.

Card Records of Individual Members of the Force.

An individual record of each member of the force should be maintained, not only at headquarters, but at each fire hall. This card should contain a complete history of each member of the force, from the date of appointment until he shall have ceased to be a member of the department. It should show:

- 1—Name.
- 2—Age.
- 3—Residence.
- 4—Telephone number (if any).
- 5—Date of appointment.
- 6—First assignment to duty.
- 7—Various assignments to duty.

- 8—Record of his delinquencies.
- 9—Record of any meritorious acts performed.
- 10—Promotions.
- 11—Complaints received against him.
- 12—Efficiency ratings month by month.

When appointed, two of such cards should be made out, one filed at headquarters in alphabetical order, the other delivered by the fireman himself to the commanding officer of the fire hall to which he is assigned. This latter card should travel with the fireman to each station where he performs duty. Such a practice would make it possible for commanding officers to keep absolute check upon the record of members of the department who come under their command.

Inspection Reports on Fire Protection.

Reports of inspections by uniformed members of the force for fire prevention should be made upon printed forms and filed at headquarters. Each fire hall should be supplied with a number of such blank forms. This form should contain headings calling for detailed information concerning the premises inspected. These reports should be filed by streets.

Reports upon Condition of Apparatus and Equipment.

A monthly report should be filed by the superintendent of engines, stating the condition of the apparatus and equipment of the department. This report should include a record of all new apparatus purchased or installed during the current month, any repairs made to apparatus and the cost thereof, as well as the general condition of the engines and other apparatus and equipment, and should be forwarded each month to the chief of the department and reviewed by him. In addition to this report each captain should make a written monthly report to his district chief upon the sanitary and structural condition of his fire hall.

Health Reports of Members of the Force.

A card record of the physical condition of all members of the force should be maintained at fire headquarters. Upon such card should appear:

- 1—Time lost as a result of sickness.
- 2—Character of illness.
- 3—Date of beginning of leave of absence.
- 4—Date of return to duty.
- 5—Name of physician attending.
- 6—Probable cause of illness.

Individual Efficiency Records.

Individual efficiency records should be kept, based in part on work records, and in part on tests. Monthly ratings of working efficiency should be sent by the commanding officers of each fire company to headquarters. Records should also be kept of both physical and educational tests, among which would be the records of industrial examination at the training school for firemen. This should be used to determine the member's fitness for fire duty, as well as to instruct him in his duties. Careful records of punctuality, appearance, attention, discipline, proficiency in report writing, proficiency in the use of grammatical English, in spelling and in answering oral questions in class, as well as tests of his mastery of special subjects pertaining to his work should be maintained, and a monthly report containing the ratings received by students in writing tests on fire duty, laws and by-laws, and proficiency in the technique of fire-fighting should be made and filed at headquarters.

Records of Delinquencies of Members of the Force.

The present documents and records pertaining to members of the force are scattered throughout the department, thereby making ready reference impossible. A file should be kept, containing a separate folder or envelope, for the complete history of each member of the force. As each new man is appointed, his application blank, the report of the surgeon, and the record of his appointment, should be filed alphabetically in an individual folder. In this folder should be placed every letter of complaint or commendation, every request made by the fireman, and in fact every communication concerning him while on the force, including a record of charges for delinquencies, and the stenographic minutes of his trial. His efficiency card and card record of assignments should be so filed that ready access may be had for postings, and reference thereon should be made to the folder containing the documentary data mentioned. Thus it will be possible for the chief, or council, or the board of control, at a moment's notice to obtain not only the record, but the complete history of any fireman in the city of Toronto.

Record of Complaints.

The citizens' complaint book should be opened at once. In this book should be recorded every complaint received by the department (whether written or oral), and requiring the attention of the fire department. It should likewise contain a report of the investigation of the complaint and the action taken. The book should be indexed alphabetically, and by subjects complained of as well.

Record of Places Licensed to Handle Explosives.

A card record of all persons or premises licensed to sell, store, handle, transfer or manufacture explosives or combustibles, should be maintained. Upon this card should appear detailed information concerning the premises so licensed, showing clearly the amount of explosives or combustibles permitted to be stored thereon, and a sketch of the part of the building in which such explosives or combustibles are stored. A copy of each such card should be forwarded and kept on file in the office of the district chief in whose district the premises are located. This should furnish the district chief with a ready reference for the purpose of inspecting such premises. There should be provided printed headings upon the card sent to the office of the district chief, under which he should enter the dates of inspections made by him and the conditions found upon inspection.

Record of Theatres, Moving Picture Shows, etc.

A card record should be maintained at headquarters of every theatre, moving picture show, dance hall, and every other place where large numbers of people congregate, and where panic might be expected in the event of fire or other mishap. This record should show an accurate description of the premises, indicating thereon the number and type of exits, the location of standpipes, fire escapes, sprinkler shut-off valves, gas connections, electric switches, and all other such information as should be in the possession of the fire chief. In addition to this card record, the department should obtain and preserve, in accordance with section ninety-five of by-law 6401, complete floor plans of such buildings, upon which should be plainly indicated the position of each stairway, lobby, corridor, passage, hall, exit door on each, including basement from the street front to the extreme rear portion thereof, the open court or courts, and exits therefrom, the position of every water and gas pipe and every electric wire, as far as possible the position of every water main and standpipe or hydrant, and of every line of sprinkler pipe, with the lines connecting each separate system of piping, and of electric wires, indicated so as to be distinguishable. An index of such lines should be given also on each plan. These plans should be made of tracing, lined and drawn to a scale of not less than eight feet to the inch.

Fire Hydrant Reports.

Each district chief should be required to secure from the captain of each company in his district a monthly report upon the condition of fire hydrants as observed by him during the month. After having

carefully reviewed these reports, the chief should file them and send copies to the water department.

Report of Fire Drills at Fire Halls.

Each captain should be required to forward to the chief of the department a weekly written report stating:

- 1—Number of drills conducted by him in his fire hall.
- 2—Length of time devoted to each drill.
- 3—Class of drill conducted (described in detail).
- 4—Number of men absent during the drills.

Horse Records.

At present the department is practically without any records concerning the horses of the department. A card should be established at once. This record should contain:

- 1—Date the horse entered the service.
- 2—Name or number.
- 3—Distinguishing marks.
- 4—Pedigree as far back as possible.
- 5—Weight and height.
- 6—Physical condition when purchased.
- 7—Station assigned to.

This card should be sent to the station to which the horse is assigned. Upon it should be recorded each time the horse is injured or sick, the treatment accorded him, the length of time laid off, and the name of the doctor treating him. A complete history of each horse in the department would thus be maintained. If a horse is transferred to another station, the card should be transferred with him.

Record of Buildings Used as Fire Halls.

The department should maintain a card history of each of the several fire halls. This card should show the date the fire hall was constructed, bought or rented, the original cost of purchase of the ground, the cost of construction, the cost of equipment, an accurate description of the building, floor by floor, with a record thereon of all repairs made to the building, and their cost, and all such other data in the way of history as may be collected and be of value to the department. Attached to this card should be a photograph of the building, to be made a permanent record of the department.

Record of Transfers and Assignments.

A record of all assignments, transfers and promotions, should be maintained, separate and apart from the regular force book now

maintained, which would enable, by ready reference, a tabulation of the number of transfers, assignments and promotions made during specific periods.

In order to administer the fire department properly, it is essential that the chief, who is the administrative head, have available and before him complete and accurate information concerning the activities of the force. This is not the case at present. In fact very little of such information is available. Without an examination of the records it would be impossible for the chief to tell off-hand the number of alarms or the actual number of fires up to the present date. Nor could he tell, without a similar examination of the records, the number of fires and the total fire loss up to the same date of the preceding year. His desk and his private office are without any ready reference statistics or information which would be of value to him in directing the activities of the force. Until recently there was not even a running card in the office of the chief of the department.

The excuse given by the chief of the department for his failure to maintain adequate records and statistics and to provide and install a proper system of reports, is that he has been without adequate clerical help. However, it should be noted that the making of reports and the forwarding of the proper kind of information to the chief of the department does not necessitate any additional clerical help, because most of this work could and should have been done by the members of the uniformed force at the various fire halls. Probably all the necessary clerical work could profitably be done by the present staff of firemen, since at present it is difficult to find sufficient work to keep their minds occupied during their leisure time at the fire houses. At the most, only one active clerk might be needed to maintain these records.

Present Filing System Inadequate.

The present filing system and equipment are inadequate. Additional filing cabinets should be supplied, and a system of filing prescribed by the rules and regulations. Filing cabinets should be of such a size that documents need not be folded when filed. All files should be of metal, fireproof construction.

Annual Report of No Administrative Value.

The annual report for 1912 was defective in that it failed to provide information which would be of service in determining the efficiency or inefficiency of the department. While the few tables con-

tained in this report contributed some information as to the activities of the department during the current year, with one exception they failed to present the activities of the preceding years.

The one subject of most value in considering the efficiency of the department of fire may be said to be the fire prevention methods employed. To this subject there is not a single reference in the report. The report contains tables showing the number of alarms received during the year, the amount in dollars and cents of the property loss due to fire, classification of buildings in which fires occurred, causes of fire during the year, the financial condition of the firemen's disability fund, and a description of the apparatus and equipment of each engine and truck company.

The report should contain in tabular form information which would not only furnish a means of determining the efficiency or inefficiency of the force, but would act as a guide to the council in the matter of enacting by-laws affecting the department, and in regulating its appropriations. It is also essential that the report contain a comprehensive financial statement, which would show in tabular form the per capita cost of furnishing fire protection for the city, the money appropriated for the department, year by year for the past five years, disbursements tabulated as to salaries, repairs, supplies, new equipment, maintenance of horses and apparatus, etc. A section of the report devoted to the force should include tables showing the number of:

- 1—Appointments.
- 2—Transfers.
- 3—Transfers.
- 4—Retirements.
- 5—Deaths.
- 6—Dismissals.
- 7—Trials upon charges and dispositions.
- 8—Reinstatements.
- 9—Days of absence of firemen due to illness.
- 10—Firemen injured at fires.
- 11—Sanitary conditions in fire houses.

The report should show in tabular form the statistics of fires, including the number of fires confined to the points of starting, confined to buildings, extending to other buildings, extinguished without engine

streams, extinguished with one engine stream, and so on, thus furnishing an accurate description of methods employed in fighting fires. There should be a table showing the number of fires month by month, between the hours of six A.M. and six P.M., and between the hours of six P.M. and six A.M. In the text of the report, special mention should be made of members of the force who have displayed **extraordinary** skill or bravery during the year.

PROPERTY DEPARTMENT

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GENERAL STATEMENT

Above all other departments covered by this survey, the property department suffers from the bringing together in a single organization and under one official head dissimilar and incongruous functions. With a view to enabling officers charged with responsibility for rendering to the community more effective service and bringing to a better adaptation of organization the work to be done, it is recommended:

- 1—That the property department be completely reorganized.
- 2—That in the reorganization the architect's department be made a part of the new property department.
- 3—That the following functions and activities be transferred from the property department to other departments of the city, viz.:
 - a—The recovery of dead bodies from waterways, to police or to the marine division of works;
 - b—The restriction of buildings and determination of restricted residential boundaries, to works;
 - c—The supervision of coal deliveries, to weights and measures;
 - d—Inspection to prevent smoke nuisance, to the city architect's department;
 - e—Supervision of baths and lavatories, to parks or health;
 - f—Supervision of chimney sweeps, to fire or police.
- 4—That the new property department include in its duties:
 - a—The supervision of building design and construction;
 - b—The operation and maintenance of public buildings;
 - c—The operation of the city garage;
 - d—The operation of the abattoirs and city markets as a separate and distinct organization, if a separate department is not formed to take over this work.

The following recommendations on certain special topics for administrative attention are also included in the report. That reorganization would greatly facilitate the carrying out of these recommendations is obvious; but the changes should be effected no matter what reorganization work is done.

- 1—That more attention be devoted to the design of public comfort stations.

- 2—That sufficient and adequate quarters be provided for the city garage.
- 3—That the pens and yards of the cattle market be repaired and placed in a proper condition to permit a thorough operating trial upon the completion of the abattoir.

Several revisions in the accounting, reporting and business procedure of the department are also suggested. These include recommendations:

- 1—That the central accounting officer of the city be instructed to formulate standard accounts and to install such accounting methods in the property department.
- 2—That appropriations and payroll accounting be made more scientific.
- 3—That the work orders for the maintenance division be revised.
- 4—That the market and garage accounts be revised.
- 5—That the duplication of work in the field reports and office records of the smoke inspection division be eliminated.
- 6—That proper costs on the operation of automobiles be established in order to show unit costs per mile.

ORGANIZATION AND ADMINISTRATION

Because of the confused conditions outlined in the preceding general statement, it is not to be assumed that the present organization and functions of the property department are fixed or staple; rather that the city must recognize a need for readjustment for the good of each of the several unrelated activities performed. The specific suggestions for reorganization which follow are designed to bring about such an adjustment with a view of making possible a more effective administrative procedure.

Present Condition Outlined.

In general, the duties of the property department are as follows:

- 1—The maintenance and upkeep of all public buildings, including fire halls and police stations.
- 2—The operation of the city garage.
- 3—The operation of the cattle market.

- 4—The operation of the city scales.
- 5—The inspection of coal deliveries.
- 6—The recovery of dead bodies from the waterways.
- 7—The enforcement of by-laws governing restricted residential districts.
- 8—The determination of the justice and reasonableness of general claims.
- 9—The supervision of chimney sweeps.
- 10—The supervision of the public market.
- 11—The supervision of public lavatories and baths.
- 12—Inspection for violation of the smoke regulations.

The mere listing of these widely different activities shows how chaotic the present organization has become.

Until very recently this department also included the street cleaning and garbage removal functions.

In addition to the general work of the department, the commissioner is continually being called upon by various committees of the general government to undertake special work. Besides, many general duties have been assigned by statute to the property committee which in turn are delegated to the property commissioner. The effect of these statutes is to make the head of the property department more of a special investigator than an executive. The commissioner is not only handicapped by the multiplicity and variety of duties, but also by the lack of clear definition of official responsibilities. Many of the activities of the department, such as the supervision of the housing of prisoners in the county jail, must be undertaken by the commissioner himself or by an authorized deputy, thus detracting from the effective direction and control of the regular work of the department. Other kinds of special work involve inherent engineering or accounting problems for the study of which the property department's employees are not qualified.

The Head of the Department Must be Jack-of-all-Trades.

The form of organization of the department and the manner in which it exercises its diverse functions puts the officers at a disadvantage in the exercise of its varied functions.

It would be difficult to list the necessary qualifications of one who could efficiently perform the duties of such an office. Having listed these qualifications, it would be next to impossible to find a man who would have both the technical training needed to supervise effectively the construction or maintenance of a public building, and who would have the social interest to make an efficient superintendent of the public baths. So, too, operation of a cattle market, inspection of smoke nuisances, the recovery of dead bodies from streams, and the determination of the justice of claims, are functions too varied in nature to be combined in one group of official responsibilities. The city government of Toronto unnecessarily cripples its own service by attempting to build up a department around a miscellaneous set of duties which bear little or no relation to each other.

Many Functions of Present Department Should be Transferred.

Whatever may have been the historic reasons for the establishment of the property department, the creation of the office of city architect and the development of other specialized departments which are charged with different duties akin to those found in this branch of the service, leaves little or no reason for its continuance. If the present activities of this department were correlated to work now done in these other city departments, there would be nothing left for the commissioner and his subordinates to do, and if such distribution were made all of these functions could be more efficiently performed.

Auditor Could Investigate, and Settlement of Claims Should be Transferred to the Auditor or Law Officers.

As was suggested in that part of this report dealing with public works, the investigation of contract claims which do not require readjudication could best be handled by the auditor's department. For the same reason the investigation of claims for damages against the city and their adjustment should be made a part of the duties of the city's auditing officer, if not the city solicitor. Aside from the great difficulty of obtaining and preserving evidence needed to protect the city, there is no fundamental difference between the investigation of a claim for service rendered, or supplies furnished to the city and the investigation of a claim for damages. Such a similarity in work obviously makes the auditor the logical supervising officer if it be found that the statute governing the activities of the city

solicitor would exclude informal adjustments by him of claims for damages. But although many of these damage claims could be settled without litigation, the city solicitor should keep in close touch with the division of law and adjustment in the office of the city auditor. In any event, there is no proper place for this work in a property department.

Dead Bodies Should be Removed by the Police or Patrol.

There is no reason for imposing the recovery of dead bodies on a property department. If this cannot be done to advantage by the police department or a harbor patrol section of that department, the division in the department of works which devotes its time and energies to marine work about the harbor and water courses could undertake it.

Restricted Residential Districts a Part of City Planning.

The establishment of restricted residential districts, and the determination of the boundary of such districts, is essentially a city planning problem. The exclusion of certain kinds of business from certain districts within the city through permit regulations, to wit, Chinese laundries, is a necessary part to the execution of a city plan. The department of works already has a permit section. The preservation of residential districts is only a part of physical planning and the execution of plans.

Coal Deliveries to Weights and Measures.

The determination of short weight in the making of coal deliveries is a function that may to advantage be exercised by the bureau of weights and measures, of the Dominion government. This in co-operation with the police department could render better service than a property department. If the desired control over coal deliveries cannot be obtained through the police department and the bureau of weights and measures, it could be associated with public weighing. In this connection it is to be noted that the inspection of short weights in the public markets (which are under the supervision of the property department) is made a function of the medical health department. There is much lost motion and inefficient effort in the present methods of supervising weights and measures, which should be remedied, and a step in this direction would be a transfer of all such duties to one properly equipped city department charged with kindred responsibilities.

Smoke Inspection Should go to Works or Architect.

Clear definition of the duty of smoke inspection could be effected by making the regulation to read "inspection to prevent the smoke nuisance". This does not limit the duty of the smoke inspection to judging the density or opaqueness of flue gas and the issuance of instructions to the plant engineer that he keep the top drafts of his furnaces open. It should extend to preventive measures to be taken during construction, as well as to the elimination of abuses and illegal practices during operation. "Smoke prevention" problems are essentially engineering or architectural. They involve the construction of smoke consumption devices, the analysis of flue gas, the relation of the kind of grate bars to the kind of coal used, etc.

The city of Toronto has an architect's department, the duty of which it is to inspect faulty construction during the design and erection of buildings, to insure the continuation of safe construction after the erection of a building, and to enforce a building code covering all details of building construction and maintenance. Greater efficiency would be obtained if the prevention of smoke nuisance were placed under the supervision of men competent to know when construction is faulty as well as when flue gas is black.

Transfer of the Supervision of Baths and Lavatories to Health or Parks.

Since the chief purpose of the supervision of public baths and lavatories is either health or recreation, it is suggested that this function may with advantage be transferred to the department of health or parks. The construction, operation and maintenance alone could properly relate to a property department—or a division of the service which specialized on building problems.

Chimney Sweeps to Fire or Police.

So, too, the supervision and regulation of chimney sweeps is primarily a police function and should go to fire or police.

A Basis for Reorganization.

The transfers recommended would leave only such functions as the operation and maintenance of public buildings, the operation of a public garage and the operation and supervision of markets.

If the term "property department" will not militate against complete reorganization of the present department, the name could well be retained for a new department. The important point is not the

name but a readjustment of functions which would lend itself to a definition of duties and the development of expertness of service. This would make possible the retention of the building construction, operation and maintenance functions and the consolidation (if desired) therewith of the city architect's department. Such a department might be made up of the following divisions:

- Accounting and reporting section;
- Architectural and building section;
- Operation and maintenance section;
- Public markets section;
- Public garage section.

The public garage section, however, might with equal advantage be under works.

Concerning the first of these proposed sections, no detailed suggestion would seem to be necessary at this time further than that very definite provisions should be made for keeping and making available accurate, complete, and well digested information about construction, operation and maintenance costs.

The architectural and building section should comprise the duties of the present city architect's department, together with the smoke inspection work of the property department.

The operation and maintenance section should specialize in the management and maintenance of office and other buildings not of a character to make them a proper part of other specialized management, such as pumping stations, garbage plants, etc. In this section could be placed the operation and maintenance of lavatories and the maintenance ("up-keep") of public baths.

The public market section would specialize in supervision of the use of public markets, including the cattle market. The testing of city scales, however, should be under weights and measures.

The operation of the city abattoir through the machinery of the city's present departmental organization is a difficult problem which must be carefully considered in the very near future. As an operating problem it is essentially unique, and will in all probability be of sufficient size and importance to warrant the establishment of a separate department.

Special Topics for Administrative Attention

More Attention Needed in Design of Comfort Stations.

Special attention should be given to the design and location of public comfort stations, in order to meet the needs of the public and

avoid damage to surrounding property. The city is now being sued for \$10,000 damage on account of the location of one comfort station. Aside from the question of location of this comfort station, it would have been quite possible to reduce the height of the kiosks as was done in the case of the Spadina Avenue station. A structure rising ten to fifteen feet above the sidewalk is certainly an encumbrance, besides being unsightly and damaging to adjacent property.

During the course of the investigation, most of the public lavatories were inspected. Without exception they were found in a cleanly, sanitary condition.

City Has Well Equipped Public Baths.

The city is to be congratulated upon the well equipped public baths which it maintains. The Harrison Baths, opened in 1909, and the new baths, opened during the last month, October, are certainly carrying out well the purpose for which they were erected. The attendance records show very frequent use and the baths themselves are kept in a cleanly and attractive condition.

Present Garage Overcrowded.

About twenty-five automobiles and twenty motorcycles are now housed in a garage which was originally designed for half that number. The employees are working under conditions which make efficient service difficult. The present structure is really nothing more than a fire-proof barn set in the middle of the old market building. There is no office where proper accounts could be kept, no store-room, and very inadequate facilities for washing and cleaning the various machines. If best results are to be obtained from the operation of a central garage, adequate quarters, preferably in a separate building, must be provided. The economies already effected by the organization of a central garage well warrant the expenditure necessary to provide adequate quarters.

Cattle Market.

There is now practically nothing to inquire into at the cattle market except row after row of unoccupied pens. It is the expectation of city officials that much of the trade which left the city cattle market and went to the Union Stock Yards will return after the completion of the city abattoir. Whether or not these expectations will be realized is a problem for the future. It must be admitted, however, that the present run-down condition of the pens and general

plant equipment will be a serious handicap, even after the completion of the abattoir. In any event, the combined abattoir and cattle market scheme should be given a thorough trial by the city, which means that the plant of the old cattle market will have to be kept in condition. Plans should be made for repairing the present structures, so as to put them in usable condition when the abattoir is finally opened.

ACCOUNTS AND RECORDS

The following criticisms of the accounting, reporting and general procedure of the property department are criticisms of existing methods. The changes suggested are applicable whether the department be reorganized or run with the present organization. A reorganization would necessitate different classification of accounts but the same general procedure. Whether reorganization is effected or not, the department should have a division of audit and accounts, whose first duty would be the elimination of waste time and lost motion in all departmental business methods.

Need for Standardization of Accounts.

An examination of the accounting and reporting division of the property department shows clearly the need for standardization in the city's accounting methods. It also shows that the necessary information is not available for determining complete and well digested information about costs of construction, operation and maintenance. Better information is available than is usually found in property departments, but the manner of recording the financial and physical operations involves much duplication and shows the lack of efficient and systematic direction and control.

There is no reason why the central accounting offices of the city should not be charged with the standardization of the accounting and reporting methods of this as well as other departments.

Appropriation Control Unscientific.

In this department, as in others, no appropriation ledger is maintained showing completely the condition of each appropriation account. Such accounts may be kept in detail in departments under the control of central office accounts or the central accounting office may keep them. and report frequently to the various departments. In any event, they should show at all times both the unencumbered and the unexpended balances. The liability journal now kept, like that in the department of works, is of the kind which necessitates back postings and a re-addition of every amount when

an unencumbered balance is desired. Processes of appropriation accounting have become so far standardized there can be only a local reason for the continuation of cumbersome and antiquated methods.

Work Orders Cumbersome.

A slight revision in the form of work orders issued would eliminate two unnecessary accounting operations. Work orders instructing various foremen to do particular pieces of work are made out in the form of office memoranda, signed by the commissioner. These are then redrafted on to blank loose-leaf, cross-section paper, and given to the various foremen, who in turn report labor and material spent on still another form. If the work orders were drawn in duplicate or triplicate, upon proper forms, one writing of the descriptive information would be sufficient, and would secure better control with less work.

Payroll Procedure Needs Revision.

A revision of the present form of pay sheet, by the addition of distribution columns, would eliminate the necessity for detailed supporting documents in order to obtain the distribution of expense chargeable to various appropriations. A budget segregated upon functional lines would also assist materially in reducing this work.

Six Weeks to Pay a Bill.

As has been noted in the reports on the other departments included in this investigation, the present method of paying bills is both dilatory and costly. After leaving the property department, bills are passed through the property committee, the board of control and council. The average time taken in payment after the certification by the department is approximately six weeks.

Garage Records Need Revision.

There are three records maintained at the present time to show the cost and operating statistics of the municipal garage. A "garage book", which is a form of equipment expense ledger; a garage "livery book", which shows the kind of service in which the various cars are used, and daily report slips, showing time service of the various automobiles. These records show particularly the lack of proper direction, both in design and operation of the plants of this department. They fail in that it is not possible to obtain from them a statement of unit costs on the mile basis. A second important defect is that they lack a properly drawn expense accounting form, to show all of the information, now scattered in two bound books and several independent tabulations, respecting purchase price, insurance, repairs and idle time.

Need for Autometers as a Basis for Unit Costs.

The fundamental basis for determining the cost of operating any sort of a vehicle is the cost per mile. Because most of the city machines are not equipped with autometers to register mileage, it is impossible to get accurate unit costs. Such unit costs could be used to great advantage in determining the efficiency of the central garage plant and of the various individual automobiles. It would also be of great advantage to administration by making possible comparison with other cities on a cost basis.

Market Accounts Inadequate.

The only market accounts available were those showing in register form the rentals for the various stalls. No statement was kept which would show either accounts receivable or revenue received from the markets. This in spite of the fact that the superintendent of markets collects approximately two-thirds of the total money due.

It is quite proper that the city treasurer should be charged with the collection of these rents, but it is also quite essential that the department having control over the physical side of the work, and having available records of physical conditions, should maintain records of the financial transactions, at least as a check on the treasurer's office. The fact that, in the department of works, the accounts receivable ledger was not in agreement with the treasurer's books, and had not been for nearly three years, emphasized the general need for departmental control of financial operations.

Smoke Inspection Records and Reports Cumbersome.

The principle of scattering operative statistics is also brought out from the smoke inspection records. There is no book, card or any kind of record where it is possible to obtain a complete, concise summary of smoke inspections made and results found. At the present time, records of satisfactory conditions are kept in one book, and of unsatisfactory conditions in another book, while the inspection reports are filed away without regard to the results of the inspections. In addition to this, the smoke inspectors carry a small field book in which the results of their inspections are entered, and from which a weekly report is made up. The weekly report, in turn, becomes the basis for entry on historical cards. The preparation of a proper form of inspection slip, for use by the inspectors in the field, would eliminate all of these clerical operations, except the original recording of the results of the inspection and the preparation of guide cards.

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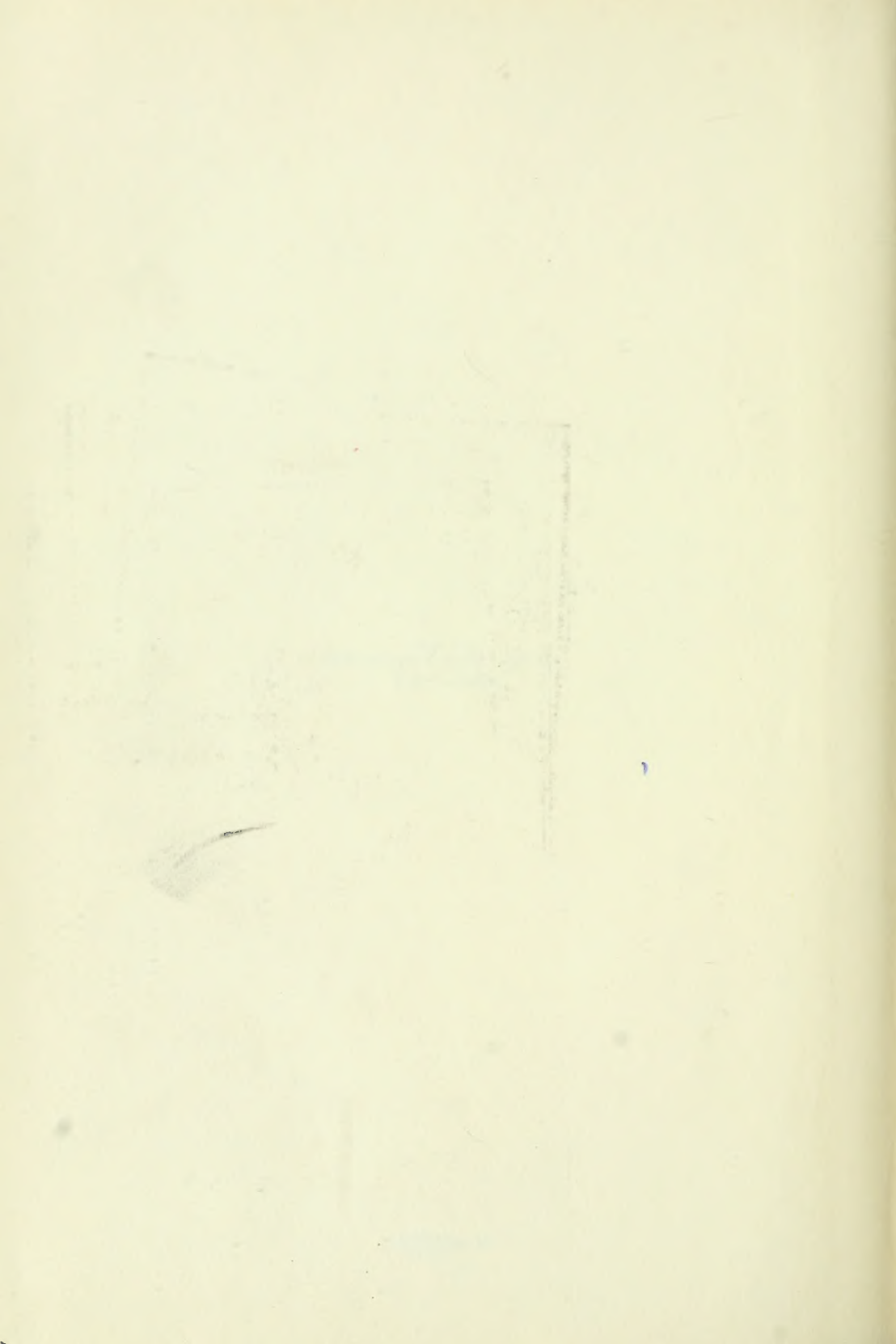
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